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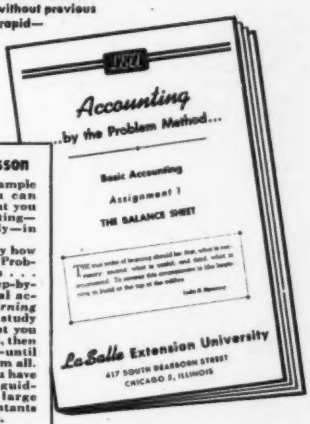

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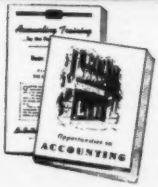

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"I call it a bad day if I don't make $25 before noon"

(This chair alone brought $4.50 with twenty-five minutes work and 32¢ in cleaning materials.)

by Harold Holmes

"Just a few months ago I made the big move. I gave up my job and started spending all my time in the little business I had been running on the side. It wasn't an easy decision, but, now I'm tickled to death I made it. Not just because I'm my own boss or because I have an excellent chance of making over $10,000 this year. It goes deeper than that.

"You see, this idea has caught on like wildfire in my town. Not a day goes by without my phone ringing with women calling for appointments. The beauty of it is that once a woman becomes my customer, she calls back year after year. Not only that, she tells her friends, too, and they call me. Before I know it I'm swamped with work. (And at $7.50 an hour net profit it doesn't take long before my bank account is really mushrooming.)

"Funny thing, but back last year, before I started, I never realized the money there was in this business waiting for someone to come along and collect it. Just think: every house in town has furniture and most have rugs or carpeting. I concentrate on just the better homes and have more work than I can handle. You know why? Because women are fussy about their furnishings. Can't stand to see them dirty. That's why they call me over every year.

"The average job is worth $25.00 to me and takes a little over 2 hours. Out of this, after paying for materials, advertising and other expenses I net about $15.00 clear profit. This means I need just 3 jobs a day to clear $11,250.00 in a year. Frankly, since this will be my first full-time year I'll be glad to hit the $10,000 mark. But after that this business should grow larger each year until I have to hire men to help me handle the business.

Personally Trained

"Believe me there's nothing magic about it. I didn't know a thing about cleaning home furnishings before I became a Duraclean dealer. But after my application was accepted, I was trained in their factory-training school and by a dealer in a nearby town. I was astonished by the short time it took me to become an expert. Actually, much of the credit must go to the Duraclean process, which is so safe it has earned the Parents' Magazine Seal.

"The portable machine you see is just one of the electrical machines I use. It manufactures a light aerated foam with a peculiar action chemists call 'peptizing'. It means that instead of being scrubbed deep into the fabric, dirt is gently ABSORBED by the foam, leaving the fabric clean all the way down. Women can't believe their eyes when they see how it works. Colors appear bright again, and rug pile unmats and rises like new. I don't have to soak rugs or upholstery to get them clean, which ends the problem of shrinkage, and means the furnishings can be used again the very same day. This alone has brought me a lot of customers.

"As a Duraclean dealer I make money with four other services, too: ***Duraproof*** . . which makes furnishings immune to moth and carpet beetle damage (it's backed by a six year warranty). ***Durashield,*** a brand new dirt-delaying treatment. It coats fabrics with an invisible film that keeps dirt out. ***Duraguard,*** another new service, flameproofs draperies, upholstery and carpets to reduce charring and the tendency of fires to flame up. And ***Spotcraft,*** which consists of special chemical products for removing stubborn spots and stains. On jobs where I perform all five services, I multiply profits!

"One of the nicest things about being a Duraclean dealer is that I get continuous help from Duraclean Headquarters. My services are nationally-advertised in famous magazines like McCall's, House Beautiful and many others. I also get a complete advertising kit prepared by experts. (There's even a musical commercial!) I get a monthly magazine full of methods to build business and I can meet with other dealers at Duraclean conventions. I'm also backed by insurance. In fact there are over 25 regular services I get under their unique System.

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"Maybe you too would like to break away from your job and make a fresh start in a business of your own. Do you need a shop? Certainly not. I operate from home. Need a lot of money to start? Not at all. Duraclean finances reliable men, after a moderate down payment, and furnishes enough supplies to return your TOTAL investment.

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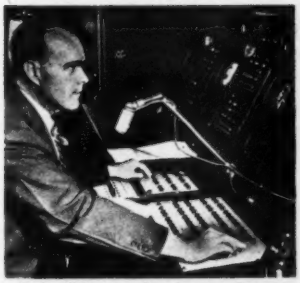

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JOHN JANEGA of Sidney, N. S., Canada, is an Electronic Technician servicing Radar, Loran and Radio on ships. DONALD PETERS, Warren, Ohio, is Police Radio Operator. Before enrolling JOHN SHEPARD of Bloomington, Ind., drove a cab. Now he does interesting work at good pay as a Radio TV Technician.

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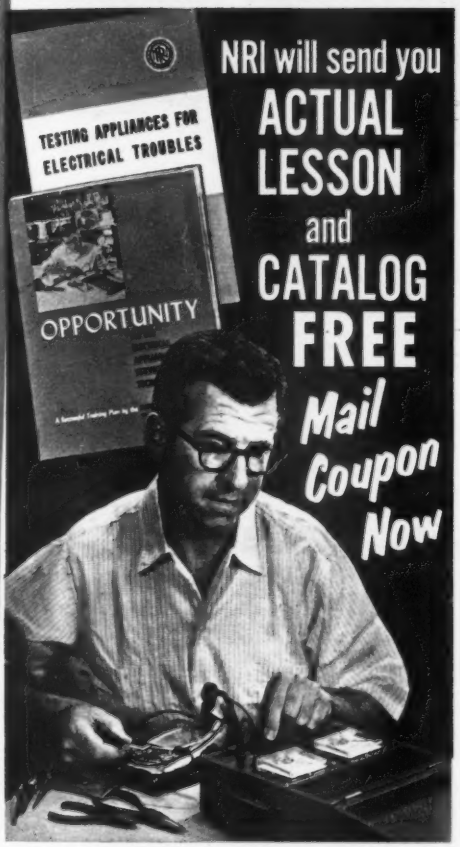

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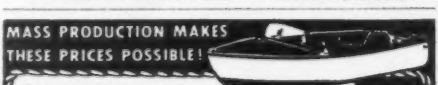

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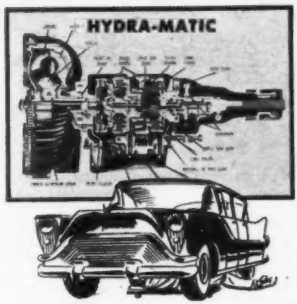

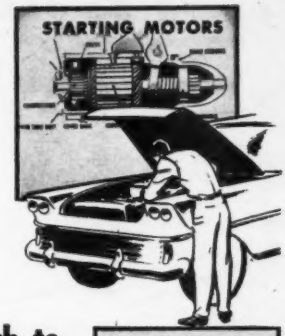

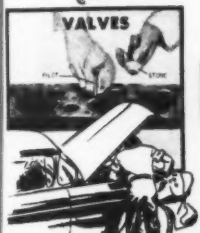

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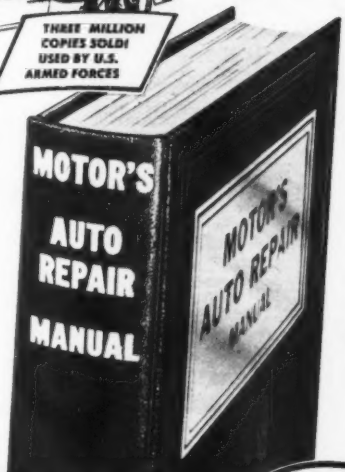

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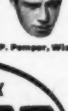

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• *Ancient Boat Plans*

I recently obtained a copy of MI Plans Catalog. I was disappointed to see that many of the boats that appeared in your magazine in years past are no longer listed. I refer to plans published in the 1930's. Many of them appeared in How To Build 20 Boats; any help in obtaining issues of that publication of the period 1930-48 will be most appreciated.

James R. Stowe
305 No. Edison St.
Arlington 3, Va.

Perhaps one of our helpful readers will be able to help you. We warn you, however—some of the older plans are on birch bark.

We would like to build the Sportster outboard, plans for which were available through MI but are now discontinued. Could anyone spare us plans for this boat?

H. C. Brooks
29 Torian Ave.
Brooklin, Ontario

Can anyone help Mr. Brooks of Brooklin? How about you folks in Brooklin, Me.? Or even Brookline, Mass., or N.H.? Or Brookline Station, Mo., or any of the 18 Brooklyns in the States, including Brooklyn? Or Brooklyn Center, Minn., or Brooklyn Heights, Ohio? Or any of you Brookses or Brookes including the ex-Rajahs of Sarawak? Thank you.

• *Our Auto Motive*

You guys never pass up a chance to run a picture of a Rolls-Royce—like in your July book you have a 1908 Rolls. Are you anti-American or something?

D.P.M.
Madison, Wis.

We're after a knighthood for Freddie Fumbles.

• *Badly Strained*

It seems as if Mr. J.X.M. has been drinking too much *schnapps* as his *sprained* statement about *strummed* being the longest one-syllable word in the English language is a lot of *schmaltz*. Either that or he is not very well *schooled*. After all, we have *scrunched* and *splotched*. You were being *stringed* along.

Dave Ball
Stamford, Conn.

OK, Dave you win, in spite of stringed *and in spite of having* stretched *meanings.*

Referring to page 16, July MI, we *scrounged* around only a moment before we found that the entry of J.X.M. could be *scratched*. We trust he won't feel too *squelched*.

Mr. and Mrs. Willard Allphin
Danvers, Mass.

As for us, we screeched *with joy.*

• *All In Your Mind*

Regarding article The Fun Of Houseboating in the July MI, what do you mean "A typical houseboat sleeps four to six people and there are dozen of models to choose from?"

P.L.T.
Chattanooga, Tenn.

Let your conscience be your guide.

[*Continued on page* 27]

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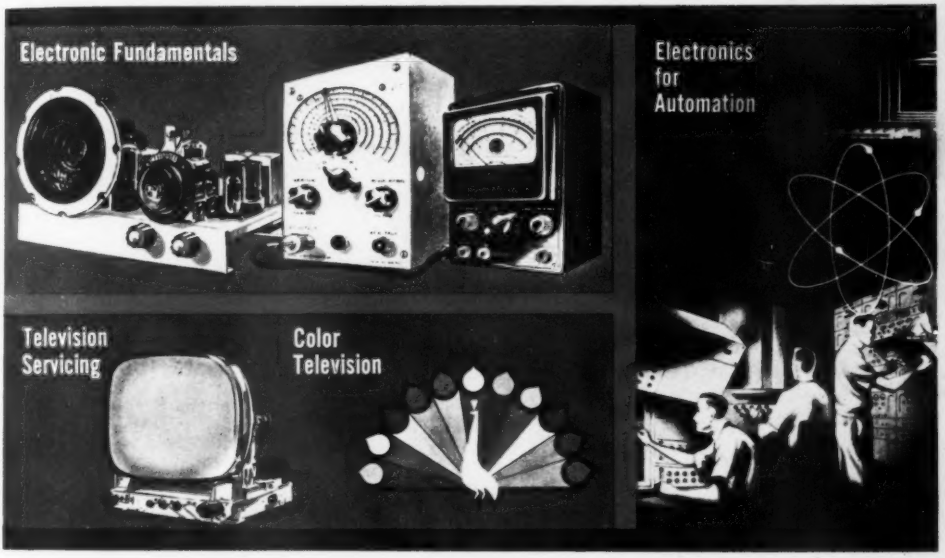

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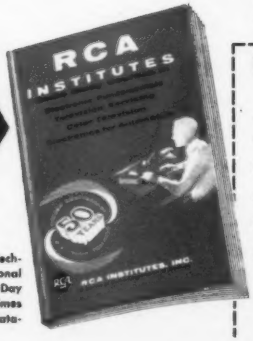

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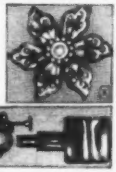

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Invention Clinic

Joseph H. Kraus

In this column each month Mr. Kraus will answer as many letters as space permits on those subjects he feels to be of widest general interest. Time does not allow him to reply to any letters except those printed here. Address your questions to the Invention Clinic, *Mechanix Illustrated*, 67 West 44 St., New York 36, N. Y.

Tube Coupling

Harold Dilday of Elgin, Texas, says that he has perfected an aluminum fitting which permits rapid hand assembly of component pieces for lake cabins, scaffolding, patio, frameworks, etc. His problem is time and money. What should he do?

There is no indication that you have applied for a patent on your coupling, nor that you have had a patent search made. This should be your first step. With the approval you already have from large companies, it should be a relatively simple matter to license one of them to make and sell your product. If it is as good as you claim it to be, you should have no trouble in putting it across.

Rust Inhibitor

Reinhold Kader of Cleveland, Ohio, has a formula that permanently protects the auto cooling system from rust. He has tested this with iron, steel and steel wool. Steel wool remains as bright as the day it was put in. Production is no problem. A basement shop would do. Is this a marketable product?

Indeed it is and very salable, too, provided.... You already have learned that some 1900 patents exist in the field of rust inhibitors. It is possible that you may be using ingredients already specified in some patents. A thorough search is in order and a patent, if possible, should follow. Also, do not forget the sizeable market in home steam-heat or hot-water systems, and other industrial uses. Be sure that your own experiments include some provision for mixing air with water through a circulating system as is found in cars or in heating plants.

Purifying Exhaust Gases

Rue E. Swayze of Rosamond, Calif., sends a copy of his patent for a cyclonic separator for removal of atmospheric contaminants from exhaust gas. Will this be practical?

Particulate matter is not the major cause of air pollution. The important thing is to make carbon monoxide harmless in an economical way. Preventing its formation would be even better; less energy would be wasted.

Combination Jar Lid, Measuring Cup

R. N. Masterson of Arcata, Calif., has received a patent on a combination jar lid and measuring cup intended especially for dispensing granulated materials such as sugar, coffee, etc. His problem is to find a manufacturer who would produce and market the item. What do I suggest?

Neither regular coffee nor sugar is sold in jars, so perhaps your best bet would be to try to encourage one or more of the instant coffee

[*Continued on page* 24]

INVENTOR'S TIP OF THE MONTH

A miniature greenhouse set-up to assure close to 100 per cent success with rooting of plant cuttings, including African Violets, would meet with an instant success.

This would have to include a fool-proof, step-by-step process with directions that are clear and lead to success for amateurs as well as for bush-league Burbanks.

INVENTORS

If you believe that you have an invention, you should find out how to protect it. The first step is to have a search made of the prior pertinent U. S. patents. If a report on this search indicates that the invention appears patentable you can apply for a patent, and the specifications and claims should be prepared.

The firm of McMorrow, Berman & Davidson, with offices in Washington, D. C., is qualified to take the necessary steps for you. We can make a preliminary search on your invention, advise you whether we think it can be patented, and prepare your application for patent.

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Invention Clinic

[*Continued from page* 22]

producers to consider your invention. Maybe you should try to push the adjustable feature which you incorporate. Then the person can make instant coffee strong or weak, and exactly the same every time.

Model Auto Highway

Randy Fairbank of Redwood Valley, Calif., has developed a toy auto and highway on which the cars are driven by electric motors supplied by current, as in a model railroad system. Is this marketable? Would each of the separate features need a separate patent?

It is not so much a question as to whether or not a product is marketable but rather the extent of the market and the potential for a profitable development by an existing company or the launching of the new production by a new company. Electric autos have never developed as great a sale as did model railroads. It would take more than what you have disclosed to interest a manufacturer in this field.

It may be that some of your separate features should have individual patents. Ask your patent attorney.

Repeating Fuse

Michael Lonergan of Waterford, Ireland, has designed a repeating fuse for electrical circuits. It is intended for heavy duty work. Statistics show, he says, that up to 80 per cent of faults are of a transient nature. Is this marketable?

Not in this country. The purpose of a fuse is to interrupt the circuit. It should not be replaced until the trouble is eliminated. Overload circuit breakers, or easily renewable

[*Continued on page* 26]

INVENTORS

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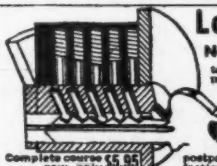

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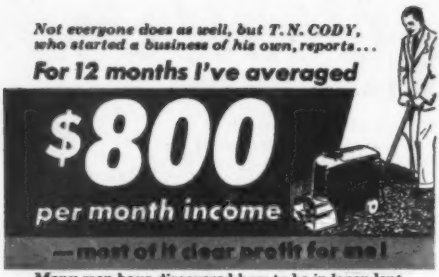

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[*Continued from page* 24]

fuses are available. For a few special uses (for example, lighting surges) restoration of the circuit may be accomplished automatically.

Square Hole Drill

Bert Fraley of Dunbar, Va., has designed a square hole drill which will fit a regular brace. Does this have any merit?

As this tool stands now it will not work well. However, if you make a model you soon will discover not only why you are having trouble but you should be able to quickly produce a correction. The same unit also might be used in electric drills. I recommend that you build a model first, either after calculating correct ratios, or preferably by allowing for a variable ratio, which could become an additional talking point. Then ask your attorney for a report on a search.

Temperature Sensing Device

Jerry F. Bridgers of Hawthorne, Calif., says that he and a friend built a temperature sensing device which will read temperatures accurately to .2 degrees in two seconds. Is it patentable? How can its marketability be improved?

The high cost of this instrument is not a major objection. It would pay for itself by the time it saves. A search will reveal if it is patentable. There are competitive temperature-sensing devices that you should examine thoroughly for comparison. Sterilization of the probe may have some bearing on acceptability. Better portability would be a great improvement. I recommend a thorough investigation from all angles. •

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Dear Editor

[*Continued from page* 18]

• *Third Wire*

In your article in the May MI entitled The Third Wire you say "If he buys only new appliances he's forced to do something." May I cite an example where an installer did the wrong thing? I bought an air conditoner a friend had used only one season. I did not inspect the plug, but noticed only two prongs. Therefore, I installed a two-prong outlet on a line with a 15-amp slo-blow fuse as noted in instructions. When I installed the unit I noted that it had a three-wire cord, but the ground prong of the plug had been cut off. The man who installed the unit in its former location violated good practice rather than spend 39 cents and ten minutes installing a proper receptacle. Needless to say, I was obliged to remove the molded plug and replace it with a three-wire cap and also to substitute a three-wire receptacle for the one I had installed. Total time less than 30 minutes.

C. Chandlee Pigeon
Silver Spring, Md.

You did the right thing, C. Chandlee, and thanks for drawing attention to a dangerous malpractice.

• *Those Clean Old Cars*

I am writing in reference to Bernard Seeman's excellent analysis of the air pollution problem in your April issue. I take issue only in an effort to minimize the volume of poisonous fumes in the exhaust. All such proposals are ineffective attempts to avoid the only real solution—eliminate the internal combustion engine. I believe the time is ripe for a return to the electric car and the steamer. The steamcar in particular showed great promise. A little money spent on its development and modernization could give the public the ultimate in economy, simplicity and durability.

Edward M. Sullivan
Brooklyn, N. Y.

You have something there. But we suspect it will be the fuel cell car that runs the rolling stinkpots off the pike.

• *Bantam Parts Needed*

I find it hard to get parts for my 1938 Bantam automobile, particularly for the motor. Any information you or your readers can furnish me will be greatly appreciated.

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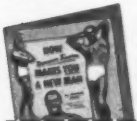

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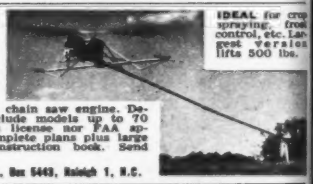

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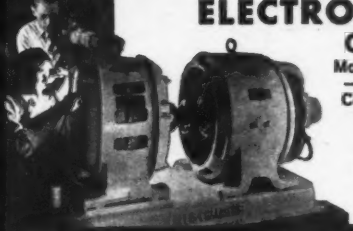

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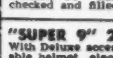

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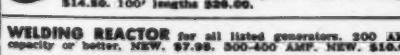

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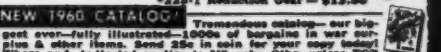

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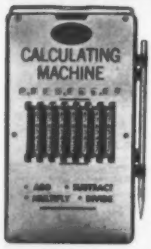

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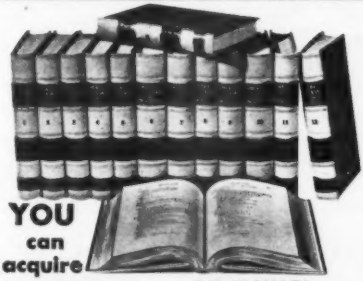

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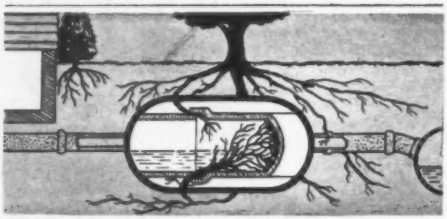

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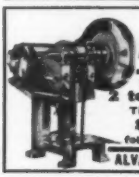

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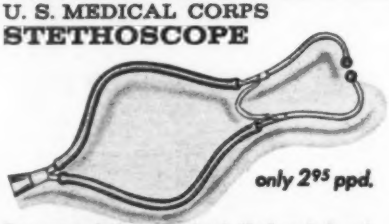

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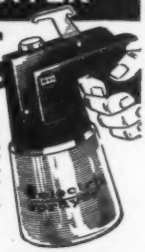

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FULL-SIZE . . . trace on wood and saw out. Clever, ORIGINAL designs, things you can make to SELL. Wall shelves, lawn signs, planters, book ends, others. $1 postpaid

Rush $1 today. **BURGESS VIBROCRAFTERS, INC. DEPT. C-102, Grayslake, Illinois**

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★ **BOAT PLANS, PATTERNS FRAME PACS**

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With The ONE Shoe Line That Serves Everyone From Baby to "Pop" and "Mom"

Only 8 orders a day can make you up to $32.00 a day. $160.00 a week. $600.00 a month. It's no trick at all to make big money full or Spare Time with America's most comfortable shoes. Amazing new "Spring-Step" cushion design proves it by actual demonstration. Over 200 styles for men, women, boys, girls and infants! **Profits are BIG—repeat orders sure and easy. No experience needed. No investment. Everything furnished free,** including finest sales outfit and actual demonstrators! **Send today for Free Outfit.**

Amazing 2-Minute **Demonstration** *Does Your Selling Job for You FAST!*

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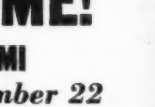
I'll show you how to start with little or no capital . . .



I show you how to get started just as I did; where to locate, 7 ways to get capital, money making methods, even how to run a sandwich business right out of your own home with only a few dollars investment. Write for free details. *Ken Kessler.*

School of Restaurant Business
335 W. Madison Street, Dept. R-729, Chicago 6, Ill.

MI Classified Ads

Your advertisement can reach this mail-buying audience of a million readers and more for only $1.00 per word . . . payable in advance (Check or M.O. please) . . . minimum 10 words. Copy to be inserted in November issue must be in the office September 3. Mail to MECHANIX ILLUSTRATED, 67 West 44th St., New York 36, N. Y. Word count: Zone number free. Figure one word: Name of state (New Jersey), name of city (New York); sets of characters as in key (14-D); also abbreviations as 35MM, 8x10, D.C., A.C.

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ADGUIDE — 800 NEWSPAPERS, Magazines, Mailing lists — 25¢. Chicago Advertising Agency, Chicago 4.

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CHRISTMAS CARDS — with customer's name imprinted. Broad-appeal personal designs and big-volume business designs—all in one attractive presentation album that actually sells for you! These deluxe cards pay deluxe commissions. Earn $300 to $500 (plus Bonuses) easily between now and Christmas, even in spare time. Sales experience unnecessary. Old-established manufacturer. Free Sales Kit includes Sample Album and complete, easy-to-follow selling instructions. Send for Kit now and pocket profits next week! Write Process Corp., Dept. 3A, 1954 S. Troy, Chicago 23, Ill.

MEN-WOMEN AGENTS: Sensational new moneymakers—Beautifully hand-painted plastic personalized photo enlargements, compacts, rings, bracelets, lockets, etc. Simply take orders, pocket 40% commission—we deliver and collect. Sales outfit free. Novelco, 3343 North Avenue, Chicago 47.

NEW BATHROOM Deodorizer. Hangs on wall. Banishes odors bathroom, kitchen. Lightning seller. Samples sent on trial. Kristee 63, Akron, Ohio.

YOUR OWN business—Suits $1.50; Overcoats 65c; Mackinaws 35c; Shoes 12½c; Ladies' Coats 30c; Dresses 15c. Enormous profits. Catalog Free. Nathan Portnoy Assoc., 2109-M Roosevelt Road, Chicago 8, Ill.

BUY WHOLESALE: 100,000 Nationally Advertised Products. Appliances, Cameras, Sporting Goods, Housewares, Watches, Typewriters, Tools, Clothing, etc. Discounts to 60%. Buy-Rite, Box 258, Hawthorne 11, New Jersey.

RUN A spare-time Greeting Card and Gift Shop at home. Show friends samples of our new 1959 Christmas and All Occasion Greeting Cards and Gifts. Take their orders and earn to 100% profit. No experience necessary. Costs nothing to try. Write today for samples on approval. Regal Greetings, Dept. 96, Ferndale, Michigan.

SAVE MONEY! Buy Wholesale! Free catalog, general merchandise. Norris, 487-J Broadway, New York.

EVERY MAN A Prospect. Request Free Sales Kit showing line of belt buckles, tie clasps, money clips, cuff links, lapels, individualized with customer's name and emblems, also cap badges for trucking, bus, taxi, police, firemen. Choice 3,000 emblems. Hook-Fast, Box 1425-MI, Providence, R. I.

EARN $12,000 YEARLY—only two sales daily. World's Best Seller, The Holy Bible (Illustrated) Protestant or Catholic. Margareta's, P. O. Box 92, Hazleton 11, Pa.

PRINTING, ADVERTISING Salesmen—Excellent moneymaking sideline selling Decalcomania Name Plates, small quantities. Automobile initials. Sign Letters. Free Samples, "Raico," XL, Boston 19, Mass.

QUICKEST MONEY with new Christmas Cards. Show Free Sample exclusive 21-card $1.25 assortment; make 75¢ on each, $45.00 on only 60. Over 400 assortments, gifts, $1 up. Leading $1 box on approval. Personal Album free. Cardinal, 1400 State, Dept. 42-G, Cincinnati 14.

BUY WHOLESALE—shoes, shirts, pants, underwear, etc. Free catalog. Bostonian, 40-E Harrison Ave., Boston 11, Mass.

TREMENDOUS PROFITS! Every man, woman and child a customer. Suits $1.50, Pants 35¢, Dresses 20¢, Shoes 20¢. Operate from store, home, car. Free catalog. Superior, 1250-C Jefferson, Chicago 7.

GOLDMINE OF 600 money makers. Free copy. Specialty Salesman Magazine, Desk 7B, 307 North Michigan, Chicago 1, Ill.

GOLD OR Silver Letters, Numbers. Windows, Doors, Trucks. 1" to 6". 500% Profits—Free Samples. Atlas-R, 544 West 79th, Chicago 20.

MEXICAN ART goods! Free Sample! Send 14¢ stamps mailing. Sylviam, Apartado 9036, Mexico City.

BEAUTIFUL FEATHER Pictures! Free Details, Sample 20¢ Stamps. Apartado 1668, Mexico 1, D. F.

AMAZING CHRISTMAS Card Profits—Make 75¢, not 50¢, on fast-selling $1.25 assortment; $75.00 on 100. Gift bonuses. 250 finest assortments, novelties, $1.00 up. 59 Personalized samples Free; assortments on approval. Free Gift Offer. Creative, 4401 Cermak, Dept. 506-L, Chicago 23.

MONEYMAKING HOMEWORK! Permanent Employment! Free Outfits! Hirsch, 1301-10 Hoe, New York City 59.

FREE BOOK "609 Odd, Successful Businesses." Box 1001-MIM, Evanston, Illinois.

EASIEST $60 TO $160 You'll Ever Make! Exciting new Southern Beauty Christmas Cards; $1 Ceramic Gifts pay huge profits. Free 25th Anniversary personalized Album, samples on approval. Special Anniversary Free gift offer. Write Southern, 478 N. Hollywood, Dept. P-58, Memphis.

SELL CHAMPION, AC, Autolite spark plugs. Reconditioned, electroplated, guaranteed 10,000 miles. 100% profit. Free sample. Lee Spark Plug Co., 1608-M Roberts, Houston 3, Texas.

$1000.00 UP MONTHLY. New Guaranteed money maker, 200% profit. Hottest automotive necessity. Millions want everywhere. Sample set $1.00. Ims. Co., R. 1, Box 198, Candler, N. C.

EASY HANDWORK makes fast-selling useful articles. Sample free. Sunmade Company, Brockton 64, Mass.

MAGAZINE SUBSCRIPTIONS — Highest commissions, Bonus, Qualified Agencies, 451CD Kingston, Brooklyn 25, N. Y.

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EARN BIG commission full or part time. Build profitable business of your own selling America's largest line low priced business printing. 360 page catalog samples hundreds of items used daily by business people. Advertising Specialty line features imprinted ball pens low as $9.95 for 100. Calendars low as $5.95 for 100. Free Sales Kit. National Press, Dept. 6, North Chicago, Ill.

FREE—SUCCESSFUL, "No Selling" plan for earning $5.00 to $10.00 hour as our service distributor, your area. Keep retail stores supplied with Rel-ong, newest scientific miracle of cosmetic world! Write Meche Mfg. Company, Trilby, Florida.

ANYONE CAN Sell famous Hoover Uniforms for beauty shops, waitresses, nurses, doctors, others. All popular miracle fabrics—nylon, dacron. Exclusive styles, top quality. Big cash income now, real future. Equipment free. Hoover, Dept. L-102, New York 11, N. Y.

MAKE MONEY selling sensational Dwarf Trees — bear Giant-size Apples, Peaches, Pears. Ornamental. Also Stark-Burbank Standard Trees, Roses, Shrubs, Vines, etc. Outfit Free. Stark, Dept. 30190, Louisiana, Missouri.

IF YOU'RE interested in making money in selling, see the hundreds of exceptional opportunities in Salesmen's Opportunity Magazine. Send name for your copy, absolutely free. Tell us what you're selling now. Opportunity, 848 N. Dearborn, Dept. 19, Chicago 10, Ill.

PUNCHBOARDS . . . AND ticket games. Send $1.00 for picture catalogue, refundable, first order. Seattle Games, Post Office Box 98, Bothell, Washington.

CALENDARS, PRINTING. Bigger commissions. Experience unnecessary. Outfits furnished. Forrester, 1520 Ardmore, Chicago 26.

WILL YOU wear new suits and topcoats without one penny cost and agree to show them to friends? You can make up to $30.00 in a day even in spare time, without canvassing. W. Z. Gibson, Inc., 500 S. Throop St., Dept. U-626, Chicago 7, Ill.

IT AIN'T Sellin'—Just Servicing! Stores make money for you every open hour. Tremendously successful! Free Book—tells all. Write Novo, 3855 Lincoln, Dept. G-51, Chicago 13.

71,000 ADVERTISING NOVELTIES Fifteen Samples—$1.00. (Refundable.) Adelphia Specialty, 212 Yellowstone Rd., Plymouth Meeting, Penna.

WILL YOU test new items in your home? Surprisingly big pay. Latest conveniences for home, car. Send no money. Just your name. Kristee 36, Akron, Ohio.

MI Classified Advertisements

GET NEW Shirt Outfit Free: make $90.00 weekly on 5 average orders a day. Famous quality Made-To-Measure dress and sport shirts at $3.95 up sell fast to all men. No experience needed. Full or part time. Write: Packard Shirt Co., Dept. 923, Terre Haute, Ind.

MAKE EXTRA Money—Big Cash Commissions plus premiums for you and your customers. Sell Advertising Book Matches —sensational new Tenorama, Glamour Girls, Hillbillies; dozens others. All sizes —Quick daily sales; big repeat business. Free Master Kit makes selling easy—no experience necessary. Superior Match, Dept. F959, 7530 Greenwood, Chicago 19.

CASH IN Fast on revolutionary, guaranteed 100% Waterproof, new vulcanized Leather footwear for outdoor men. 210 other shoe, jacket sellers. Postcard brings Free outfit! Mason, Chippewa Falls K-171, Wis.

AMAZING INVENTION stops slamming, banging doors! Big profits easy with lowest priced Hydraulic Door Check for all type doors! 10-Second demonstration sells it. Kant-Slam, Dept. M-4, Bloomfield, Ind.

MAKE EXTRA Money selling advertising matchbooks. Free catalog and sales outfit. Matchcorp, Dept. MI-99, Chicago 32.

• • • BUSINESS OPPORTUNITIES

FREE! NAME Brands Catalog! Your own high profit business. Sell Name Brands, full or part time. No inventory—no investment. More than 2000 Name Brand items; lowest wholesale prices. Watches, jewelry, cameras, hi-fi, stereo, radiophonos., appliances, housewares, hardware, power tools, luggage, musical instruments, garden equipment, sporting goods, toys, many others. 8 Floors of Name Brands. Million dollar inventory. Orders shipped complete within 24 hours. Send for Free beautifully illustrated catalog Now! Separate wholesale price list. H. B. Davis Corp., Dept. 16, 145 West 15 St., New York 11, N. Y.

$3.00 HOUR—HOME, sparetime, assembling pump lamps. Easy. Free Details. Ougor, Caldwell, Arkansas.

FLOK-KRAFT CHRISTMAS Trees! Earn Big Profits spraying ordinary cheap trees into beautiful, colorful, "cashmere-soft" specimens that bring 10 times original tree cost. Be first your area this Christmas. Free Sample and booklet showing 50 Other Ways To Earn Big Flok-Kraft Profits. Flok-Kraft, SRX, Los Angeles 61.

GAME WARDEN, Government hunter, Forestry, Park and Wildlife Services announce job openings. All states. Enjoy outdoor work, good pay, real security. Complete information Free! Write Forestry & Wildlife Course, Dept. CC-159, 1038 S. LaBrea, Los Angeles 19, Calif.

MAKE MONEY Clipping Newspapers. Write Newscraft, BMI-983-E. Main, Columbus 5, Ohio.

GROW LIVING Miniature Forest (only inches high)—or orchard that bears tasty tiny fruit. Learn amazing Dwarfing secrets! Fascinating hobby! Profitable Home-business Opportunity! Free Seeds and Plan. (State your age.) Miniature Nurseries, Dept. SR, Gardena, Calif.

GROW ORCHIDS at home. Profitable, fascinating. Successful home grower explains special light, temperature and humidity conditions orchids need. Free—full details. Orchids, 100 S. Vermont, Los Angeles 4.

WANTED: HOME producers, to be subcontractors. Cast plastic products for manufacturers in our Clearing House Service. Thousands of easily-made items required. Cash in at home, without previous experience. Plastic Service Associates, Dept.-9-MI, East Boston 28, Mass.

$70 WEEKLY—HOME, spare time. Simplified mail bookkeeping. Immediate income—easy! Auditax, 34757E, Los Angeles 34.

$250.00 WEEK PROFIT possible. Earn at home spare time with fascinating Printing method. $5 starts you—send no money now. Free Confidential Facts and Valuable Samples. Screen-Print SR, Los Angeles 61.

YOUR ENVELOPES addressed accurately, reasonably. Fast service. We have capable addressers in your city. Glenway System, Box 6568, Cleveland 1, Ohio.

WANT TO Make Big Money At Home? $10.00 profit in an hour possible with Invisible Mending. Make tears, holes, disappear from clothing, fabrics. Steady year-round demand from cleaners, laundries, homes. Details Free. Fabricon, 6254 Broadway, Chicago 40, Ill.

IF YOU Like Motorcycles And Money then send for Harley-Davidson Dealership Book on how to become a franchised dealer of motorcycles and a new line of motor scooters. Here's a chance to own your own business with a very modest investment. The youth market is beginning to explode and the next few years promise a chance to cash in on it. Write for free illustrated Dealership Book today. Harley-Davidson Motor Company, Dept. MI, Milwaukee 1, Wisconsin.

YOUR OWN Home-Operated Business. Take over your area as our Service Distributor keeping retail stores supplied. Nationally advertised 30-year-old line pays up to $20.00 hour. Under $100.00 for merchandise gets you started. For samples, highly successful plan, write Novo, 3855 Lincoln, Desk G-67, Chicago 13.

BRONZE BABY Shoes: Instructions, Equipment and Mountings for genuine Electroplating Process. Largest Supplier of all Plating Equipment, Supplies. Free Catalog. Hollywood Bronze Supply, Dept. B-5, 1624 East First, Los Angeles 33, Calif.

MOTEL-RESORT MANAGEMENT. Qualify for hundreds of fascinating, leisurely, well-paid executive openings. Learn at home. Free Booklet. Motel Managers Training School, MK-79C, 612 S. Serrano, Los Angeles 5.

MAKE $46 FROM Square Foot Plywood; Jigsaw necessary. Free Details. Woodet, Bridgewater, Mass.

VENDING MACHINES—No selling. Operate a route of coin machines and earn amazing profits. 32-page catalog Free! Parkway Machine Corporation, Dept. 2, 715 Ensor St., Baltimore 2, Md.

"MAILORDER LAWS and Regulations" and "Mailorder Rules for Beginners," $2.00. Explain licenses, taxes, legal requirements, etc. Tasker, Box 3131-M, Alexandria, Va.

BIG MONEY—Operate own Fix-it Shop. Service household appliances, motors, mowers, saws, skates, etc. Free Book. Christy Trades School, A-7806, 3214 Lawrence, Chicago 25.

LEARN SEWING Machine Repairing. To $125 weekly. Sparetime. Supplies. "Add to present busines." Shipping from Chicago, New York, Los Angeles. Write today! Taylor Service, Box 2126, San Bernardino, Calif.

QUICK PROFITS, with no capital! Take orders for magazines your neighbors like, want. Make cash on the spot! We show how with Free kit. Get yours now. Write McGregor Magazine Agency, Dept. 371, Mount Morris, Illinois.

11,000 NEW PROSPECTS Daily. Baby record books, shoes, albums. Sell mail-order. Use our literature. Write: No-Co-Ro, Capitola 16, Calif.

EARN MONEY at home raising fishworms for us! Backyard, garage, basement. We buy your crop! Inquire: Oakhaven 45, Cedar Hill, Texas.

FIX TYPEWRITERS. Free Repair Course. Home operated. Remit 25¢ for book explaining Free Course and Agency Appointment. Athey, Tarentum, Penna.

MAIL NEWSPAPER clippings daily for cash. Ketchum's Advertising, BIO58, Springfield, Ill.

IMPORT-EXPORT OPPORTUNITY, profitable, world-wide, mail-order business from home, without capital; or travel abroad. Established world trader ships instructions for no-risk examination. Experience unnecessary. Free details. Mellinger X-759, Los Angeles 24.

FRANCHISES MAKE Profits! Have your own prosperous franchise business. Opportunities nationwide for distributors, dealers, agency operators. Write today. National Franchise Reports, MI-528, 333 North Michigan, Chicago 1.

NEW HOME-IMPORT Mail Order Profitunity! Your mailbox stuffed with money! No Selling. No experience. No investment. We supply everything. Free Details. Mail Order Distributors (Import Division), 15201 South Broadway, Los Angeles 61C9, Calif.

COSTS 8c—RETAILS $1.00. Needed Automotive product. You manufacture, distribute, easily. Everything furnished. Wilson, Box 505-AR, Princeton, W. Va.

SHINE SHOES Without "Polish." New invention. Lightning seller. Shoes gleam like mirror. Samples sent on trial. Kristee 110, Akron, Ohio.

WHOLESALE CATALOG free — shoes, shirts, pants, underwear, hosiery, etc. Bostonian, 40-EA Harrison Avenue, Boston 11, Mass.

STOP LOOKING! Get exclusive franchise. Choose from large range of offers. Free bulletin. Franchise Previews 26E. 1218 Standard Building, Cleveland 13.

MAKE $25-$50 WEEK, clipping newspaper items for publishers. Some clippings worth $5.00 each. Particulars free. National, 81-X, Knickerbocker Station, N. Y.

MINK RAISING information free. Complete. Lake Superior Mink Farm, Superior, E E, Wisconsin.

OPERATE PROFITABLE mailorder business. Write: Roberts Enterprises, 6122-X Prytania, New Orleans 18, Louisiana.

WE PAY $4.50 lb. dried. Grow Mushrooms. Cellar, shed and outdoors. Spare, full time, year round. We pay $4.50 lb. Free Book. Mushrooms, Dept. 183, 2954 Admiral Way, Seattle, Wash.

PIANO TUNING learned at home quickly. Tremendous field! Musical knowledge unnecessary. Be independant! Information free. Empire School of Piano Tuning, Champaign, Ill. (Founded 1935).

CASH FROM Sawdust, Tin-Cans, Newspapers. Over 200 methods. Instructions $1.00. Charles Company, 42-EPN, Norwood, Ohio.

MARKETS EVERYWHERE. Make Artistic concrete birdbaths, pottery. Best coloring. Home workshop. Hundred varieties. Hollywood Cementcraft, 8527-E Wonderland, Hollywood 46, Calif.

OPERATE PROFITABLE mailorder business!! Write: Bond, 1637-K West Vernon, Phoenix, Ariz.

$34.70 TWO HOURS. Manufacturing concrete products. No selling. Carlaine Castings, 1803 Fremont, Rapid City, South Dakota.

BAKE NEW Greaseless Doughnuts In Kitchen. Sell stores. Free recipes. Irving, 3605 South 15th, Minneapolis 7, Minnesota.

$30-$60 WEEKLY ADDRESSING envelopes for advertisers. Instructions $1, refundable. Ryco, 210 Fifth Ave., Suite 1102-A, New York 10.

MEN, WOMEN, your own business opportunity. No risk offer. Free Details. Cathmore, Box 66, Cedar Grove, New Jersey.

$95 WEEKLY! WORK home evenings! Men, women. Free "Confidential Plan." Scotts, Box 388, Great Neck, New York.

OPPORTUNITY TO earn $15,000-$30,000 annually. Franchise protected. Granted on $12,500 basis. Live at home. No merchandise to buy. Selfemployed. One of most exclusive and noncompetitive Businesses in United States and Canada. Send for free explanatory booklet. Harrell & Company, Box 8-F, Louisville, Ill.

COLORGLAZED CONCRETE pottery made without molds. Patented method. Cemetery products, novelties, files. Basement leaksealing. Moneymaking projects. Booklets, details free. Men only. National Pottery, Grand Rapids, Minnesota.

LIQUID MOLDING Rubber, Free Sample Shellcraft Supplies. Chaney, 1907-B East Road, Jacksonville 11, Fla.

MAKE FLEXIBLE molds. Cast plaques, figurines. Free sample. Tooker, 1045-E Fairview, Hamilton, Ohio.

BIG PROFITS. Your own business. Full or part time. Little or no capital. Details free. Business Books, Box 5-C, Plaistow, N. H.

EARN $10,000 SELLING Books by Mail. Box 51-MIBF, Des Plaines, Illinois.

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COPYRIGHTED REPORTS. Best paying companies—travel, adventure, promotions. Construction, aviation, shipping, oilfields, laborers, clerical, trades, supervisory, factory, unusual opportunities. Skilled-unskilled. Foreign-stateside. Only $2.00 ($2.25 Airmail) (COD'S Accepted). Satisfaction guaranteed. Included free: Special reports on Alaska—Venezuela—South America. Research Services, Meramec Building, St. Louis 5-MI, Missouri.

AMERICAN OVERSEAS Jobs. High Pay, Men, Women. Transportation Paid. Free Information. Transworld, Dept. 17M, 200 West 34th St., New York 1.

JOBS ON Ships; Write for free information. World Wide Seamens Service, Box 1445-MI, N. Y. 1, N. Y.

CIVIL SERVICE Jobs—Mechanical, clerical, professional—U.S.A., overseas. List $1.00. Civil Service Bulletin 115M Haypath Road, Plainview, New York.

JAPAN! KOREA, Okinawa! Many hi-paying jobs available. All fields. Complete, detailed reports $2.00. Waits, C.P.O., Box 903, Tokyo.

FREE INFORMATION — USA Overseas Jobs, High Pay. Transportation. Futures, Dept. L, 215 West 34th Street, New York City 1.

OVERSEAS JOBS—High pay, free travel —Completesurvey $1.00—Included free: "Directory Of American Companies In Sixty Countries." Hill Publications, P.O. Box 26-M, Massapequa Park, New York.

FOREIGN JOBS—Latin America, Alaska, Canada, up to $1500 monthly. Up-to-date 1959 Foreign Service Directory gives complete information; hot list of firms hiring for Military and Civilian Construction, Aircraft, Oil, Exporters-Importers, Mining. How-When-Where to apply. 11th successful year. $1.00. Global Reports, Box 8873-MI, Los Angeles 8, Calif.

JOBS ON Ships and Yachts Traveling Foreign Countries. Davenport's, 1354-M, GPO NY 1, NY.

WANT FREE Job Information?? Write: Employment Headquarters, 79 Wall Street, Dept. 8-A, New York 5.

JOBS OVERSEAS! Write Janecek Development Co., 109 Hub Station, New York 55, N. Y.

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MAKE EXTRA Money—Big Cash Commissions plus premiums for you and your customers. Sell Advertising Book Matches —sensational new Tenorama, Glamour Girls, Hillbillies; dozens others. All sizes —Quick daily sales; big repeat business. Free Master Kit makes selling easy—no experience necessary. Superior Match, Dept. FX-959, 7530 Greenwood, Chicago 19.

MAKE $5,000 YEARLY sparetime raising mink, chinchillas, nutria, etc. Free booklet reveals proved plans. Write: Furs, 588 Mt. Pleasant Road, Toronto 3, Can.

STOCK MARKET Profits! Proven method pinpoints dynamic issues, prevents heavy losses. Start small—expand consistently! Write: Treasury, 709 Webster, New Rochelle M-2, N. Y.

SELL TITANIA Gems; far more brilliant than diamonds. Catalog 10¢. Diamonite, 2420-X 77th, Oakland 5, Calif.

EARN $240.00 A Month at home, spare time doing only Two $5.00 Invisible Mending jobs a day. Big money paid for service that makes cuts, tears disappear from fabrics. Steady demand. Details free. Fabricon, 6256 Broadway, Chicago 40, Ill.

VENDING MACHINES—No selling. Operate a route of coin machines and earn amazing profits. 32-page catalog Free! Parkway Machine Corporation, Dept. 15, 715 Ensor St., Baltimore 2, Md.

MAKE BIG Easy Profits making costume jewelry at home in spare time! Quick, easy to make; easier to sell! Details Free! Don-Bar, 3511 W. Armitage, Dept. J-212, Chicago 47, Ill.

WANT BIG, Steady Income? Grow Red Wiggler Fish Worms! Guaranteed Market—we pay you $1.50 pound! Red Wigglers, Warsaw 8, Indiana.

$15.00 THOUSAND! ADDRESSING Envelopes for Advertisers! (We make no false claims.) Other opportunities offered! 100 firms! Details 25¢. Barrie, Box 1247-M, Woodhaven 21, N. Y.

UNHAPPY? NEED more money? Then learn your abilities and capitalize on them! Free I.Q. Test and Information. Associated, Box 4, Manhattan Beach, California.

START YOUR Own Business, or sideline, on small investment of $12.95. Product is nationally known fire alarm. Potential is every homeowner, farmer, rest home, small business in your community. Sold on simple demonstration. No installation or servicing. Unconditional guarantee. We supply sales aids at no charge. Write for additional details: A. W. Ronald & Co., P. O. Box 412, New York 3, New York.

MEN—WOMEN! Start Money-Making Plastic Laminating Business at home in spare time. Material that costs 11¢ brings back $2.58. No canvassing or selling but mail orders bring in $20 a day. Write for full particulars Free. Rush name on postcard to Warner, Room CL-4-H, 1512 Jarvis, Chicago 26, Ill.

$20.00 FOR CERTAIN newspaper clippings. Newscraft, MI-983-E. Main, Columbus 5, Ohio.

"STRIKE IT Rich On Small Home Repairs" by using Set Prices. Details Free. House Clinic, Dept. M, 7307 Fenton, Dallas 31, Texas.

START YOUR Own Business On Credit (U. S. and Canada). Your own boss. 1383 Dealers sold $5,000 to $33,500 in 1958. We supply stocks, equipment on credit. 200 home necessities. Sales experience unnecessary. Pleasant profitable business backed by world-wide industry. Write Rawleigh's, Dept. I-U-MOM, Freeport, Ill.

AFRICAN GIANT Earthworms, 100—$2.00, 500—$7.00 (Dealers Quoted) Ozark Worm Farm-4, Willow Springs, Missouri.

MAKE MONEY Writing Short Paragraphs. Information Free. Barrett, Dept. C-78-D, 7464 No. Clark, Chicago 26.

BECOME INDEPENDENT with your own franchise business. Thousands earning handsome incomes. Request interesting facts today. National Franchise Reports, MX-528, 333 North Michigan, Chicago 1.

BIGGEST SPARE Time Profits, showing friends, neighbors beautiful Evans Christmas and All Occasion Cards. Easy to take orders (100% profit) with special kit sent-on-approval. Included Free: 32 samples Personalized Christmas Cards, all new Imprinted Stationary Display, 2 Catalogs, Selling Guide. Write today: New England Art Publishers, North Abington 951, Mass.

PROFIT FROM large selection of franchises available your territory. Free information rushed. Franchise Previews 25E, 1218 Standard Building, Cleveland 13.

START BIG-PAY Business At Home in spare time. No experience needed to operate little table-top machine for bronzing baby shoes. Make $5.46 profit on every pair. Full particulars Free. Send postcard to Mason, 1512 Jarvis, Room CM4H, Chicago 26, Ill.

BUSINESS OF your own. Earning potential as high as $40,000 annually. Issued on $12,500 base. No merchandise to buy. Send for free explanatory booklet. Harrell & Company, Box 8-FF, Louisville, Ill.

$30-$60 WEEKLY ADDRESSING envelopes for advertisers. Instructions $1, refundable. Ryco, 210 Fifth Ave., Suite 1102-A, New York 10.

MAKE EASY Money Addressing-Mailing!! Pleasant Work. Write: Merrill Histand, Box 182PE, Hatfield, Pa.

$200.00 MONTHLY. SPARETIME, with tablesaw. Write. Holiday House, 7227 4th Plain, Vancouver, Washington.

MI Classified Advertisements

MAKE $25-$60 WEEK, clipping newspaper items for publishers. Some clippings worth $5.00 each. Particulars free. National, 81-X, Knickerbocker Station, New York.

ATTENTION! MEN, Women! Earn extra cash, address advertising postcards. Langdons, Box 41107-M, Los Angeles 41, Calif.

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Mail for McCahill

Uncle Tom is sorry he can't answer all his mail personally. In this column he'll answer the most interesting letters. Write to him at MECHANIX ILLUSTRATED, [illegible] West 45th St., New York 36, N. Y.

● *What makes some races such as Sebring, Indianapolis and the Daytona Beach stock car races so popular while similar events in other parts of the country flop almost completely? In other words, why should Sebring be great and bring people from all parts of the country and another sports car race fail to draw a crowd? If there is any good answer to this, I'd sure like to know it.*

Activities Chairman
(Name withheld on request)

Actors, pal—*actors* are the answer. You may have the finest theater in the world, the greatest scenic designers and the most comfortable seats, but just try to supplant real actors with a few ham-and-eggers and the till will remain as bare as Brigitte B. Sebring has the greatest cast of inernational actors of any sporting event held in this country—hence, tremendous crowds. Indianapolis gets the best in Speedway drivers and Daytona gets the best in stocks. Throw enough top drivers in any event and the customers will come by steamer, helicopter and dogsled to see them.

● *I'm thinking of taking my wife to LeMans and the entire European race circuit. She's not too enthused, so what can I say to convince her?*

A.W.H.
Greenwich, Conn.

Leave her home. Taking a wife to France is like bringing sandwiches to a banquet.

● *I understand Congressmen get 20 cents a mile travel allowance when they use their own cars for going from Washington to their homes and back. This sounds like a racket to me. How come they get allowances nobody else could possibly swing? My company allows me eight cents a mile.*

Herb Knowland
Pittsburgh, Pa.

I believe you're right, Herb—and if you are, any Congressman who accepts 20 cents a mile should be ashamed of himself. But then, these kids make their own rules.

● *I'm considering marrying a girl who was a former judo instructor at the police academy. Any suggestions?*

L.O.'S.
Brooklyn, N. Y.

Keep your hands in your pockets.

● *I understand not over 50 per cent of new car buyers drive them as far as 50,000 miles before trading them in. Have you any figures on this?*

Paul Shute
Hartford, Conn.

Oddly enough, the McCahill Associates Weird Figures And Stupefying Research Division has made a check on this with dealers and owners. Hard as it may be to believe, more than 50 per cent of all new cars sold are traded in or re-sold before going 20,000 miles, and less than ten per cent of them are driven 50,000 miles by the original purchasers. During prosperity (which means when the Internal Revenue Department is really raking it in), a large segment of American new car buyers start looking around for a new car as soon as the tires begin to show real wear and the finish has lost its original luster. That 20,000 miles, incidentally, represents two years' full use for the average owner.

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[*Continued on next page*]

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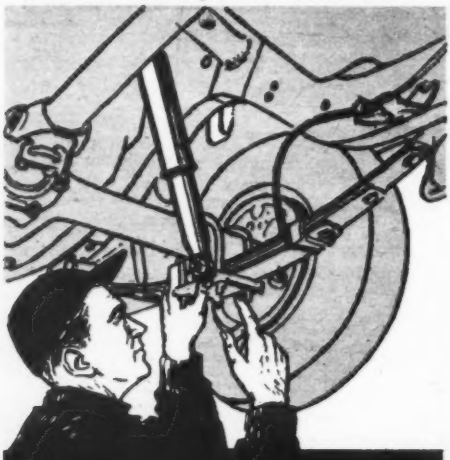

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Mail For McCahill

[*Continued from page 47*]

● *I think my husband is a nut; what do you think? He claims that rain water is much purer than hose water and therefore easier on the car's finish. So whenever it rains he puts on shorts, backs our car out of the garage and stands in the rain like an idiot, washing the car off.*

J.B.
Baltimore, Md.

I concur with your original analysis.

● *I understand that five years from now all American cars will be completely equipped with "idiot lights" on the instrument panel instead of gauges. How do you feel about this, if true?*

Theodore Bradley
Akron, Ohio

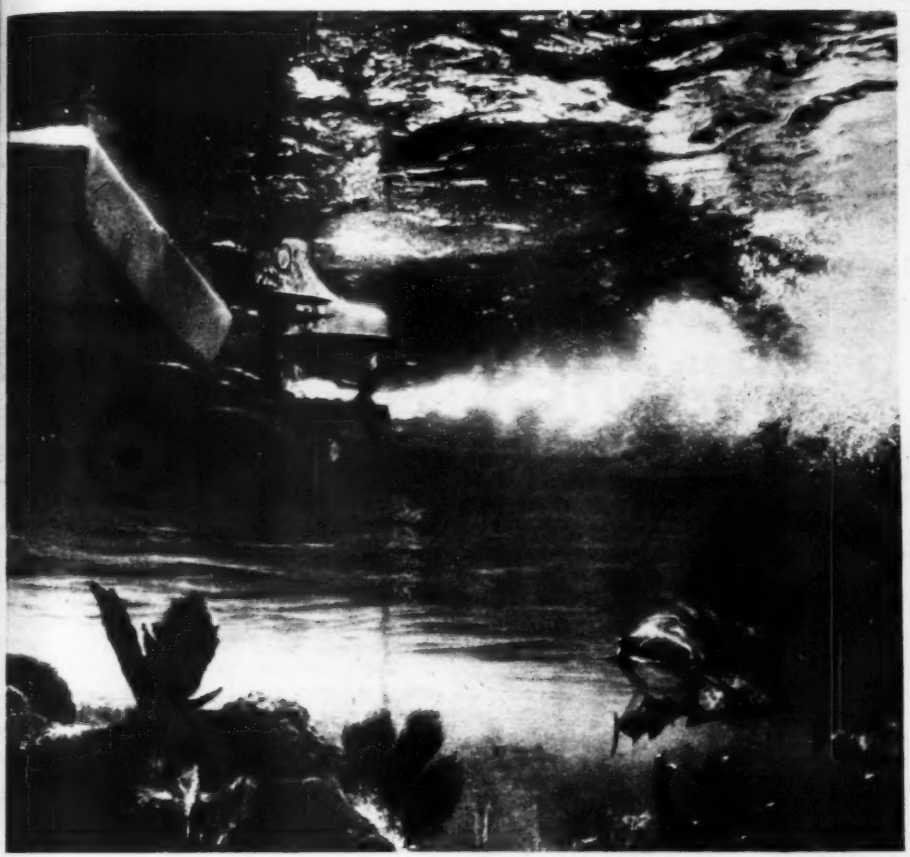
My feeling is "idiot lights for idiots." On many of the new cars I've tested there is no possible way of knowing *how much* your generator is charging, *how much* oil pressure you have or even *how hot* the engine is running. Some temperature indicator lights aren't set to turn red until the coolant has reached a temperature of 230° F. or more, due to the use of pressure caps which allow higher heat before boiling. As you know, water boils at 212°, unpressured. My feeling is that if you wait until the coolant reaches such a temperature before getting a warning, considerable damage could be done to the engine before you were even aware of trouble. The same goes for oil pressure. You must bear in mind, though, that the great majority of car buyers are not mechanically inclined or readers of such magazines as this. Accurate gauges might mean very little to them, while a red light means the same thing around the world (with one exception—and you can ask Dad about that).

● *I read with interest your reply to Senator Neuberger on automobile racing, particularly since in my service as Councilman in the Town of Lancaster we are now faced with the building of an automobile race track. In view of your interest in safety precautions necessary in this type of operation, I would be interested in hearing suggestions from you as to how we may best police and regulate the race track and the connected drag strip so that the operation will not become a nuisance.*

Alexander Mrozek
Councilman, Town of Lancaster, N. Y.

I'm not exactly sure what you mean by "nuisance." The biggest problem, especially

[*Continued on page 50*]



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Mail For McCahill

[*Continued from page* 48]

with drag strips, is crowd control. In fact, spectators are the biggest problem at all races and, unless policed properly, serious accidents are inevitable. In most centers where racing is a major event, such as at Daytona, a number of law enforcement agencies are induced to help out. In the case of Daytona Beach, this not only includes the local police department but the Sheriff's Department with a great number of deputies, the Florida Highway Patrol and a division of the State National Guard. All these units co-operating have kept the Daytona events safe for spectators.

Without adequate policing a promoter would be a fool to attempt to hold a race. Spectators often approach the lunatic fringe and will actually get on the track if not restrained. They do many other things that would cause life insurance companies to have a mass cardiac failure. Courses should be designed for ease of control and policing should be sufficient to keep it under control. A few hard-boiled arrests and convictions for violators may be needed at first to prove you mean business.

● *You may think this is a nutty idea but I don't. Everyone knows that in an emergency the biggest delay is the half-second it takes to raise your foot off the gas pedal, move it over to the brake pedal and push it down again. With power brakes, wouldn't it be easier and twice as fast to have a brake pedal that went on by lifting up your foot under the pedal instead of pushing down on top of it? This lift-type brake pedal could be located right above the gas throttle and cut the brake application time by two-thirds. Just one up movement—instead of up, to the side and then down. What's wrong with this idea, if anything?*

Graham Anthony
Memphis, Tenn.

It would sure louse up your shine. But it makes pretty good sense with power brakes.

● *I've been told that in the old days the race drivers trained like prizefighters before entering a major race and were in absolutely top physical condition. I also understand some of today's drivers spend a major part of their time before races in gin mills. What's the dope on this?*

T. Fred Butterworth
Boston, Mass.

Many of the old-time greats did train like prizefighters, especially the European teams. They not only felt this was necessary to build

[*Continued on page* 52]

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4 Keep front wheels aligned and balanced. You'll get smoother, safer riding and steering in addition to increased mileage.

5 Accelerate, brake, and take curves gently. Otherwise you're scraping away precious rubber in *seconds* instead of over the miles.

6 When you drive with a heavy load, add a pound or two of *extra* pressure to each tire. This will reduce sidewall flexing, cut wear, let tires run cooler . . . safely.

7 Take advantage of the full riding comfort of properly inflated tires. Every 1000 miles have your car chassis lubricated with superior Marfak at your Texaco Dealer. This will give you a smoother, quieter, *cushiony* ride. At the same time, Marfak protects delicate chassis bearings against wear and corrosion. Seals out grit, road dirt and water.

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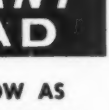


AIR LIFT® AIR LIFT COMPANY Lansing, Michigan

In Canada: 18 Hook Avenue . Toronto 9, Ontario

Mail For McCahill

[*Continued from page* 50]

up their endurance for long, hard races but to keep their reaction time needle-sharp for hour-after-hour gruels. Today, a number of our drivers spend the night before a big race living it up until the wee hours, which means they can't possibly be as sharp the next day if an emergency arises. This is actually pretty serious and I don't know how it can be controlled. But it's something the big organizations such as USAC and NASCAR might try to do something about. Some top airlines demand that their pilots not have a drink within 24 hours of their next scheduled flight; they must feel it's worthwhile. In some races I've attended, if a booze saliva test were made the morning of the race, half the field wouldn't participate that day.

● *What we need in the American automobile business are more real automobile men and not so many salesmen at the head of the companies. I wonder how many company heads could fix their car if something went wrong with it?*

Armand P. Price
St. Louis, Mo.

Actually, in the Board Chairman spot it's doubtful if any of them could open and shut a mailbox correctly. But right up close are some real automobile men who could give the best of the hotrodders a run. Ed Cole, Chevrolet's General Manager, is a pretty sharp boy and so is Pontiac's Bunky Knudsen. Bill Newberg, executive vice president of the Chrysler Corp., put himself through college by building hotrods for the other kids and he started his career with Chrysler as a test driver. Some stupid guys like McCahill are still test drivers: but Newberg proved he not only knew automobiles, but had plenty of executive brains besides.

● *We have approximately 100 cars, privately owned, on a mileage basis with the British Columbia Forest Service scaling staff and they average between 3,500 and 6,000 miles per year. Cars weighing 2,600 pounds and under are reimbursed at eight cents per mile and cars weighing over 2,600 pounds at 11 cents per mile. As we are preparing a brief to our superiors requesting a better mileage deal, any facts and figures on this subject you may be able to furnish us will assist us greatly.*

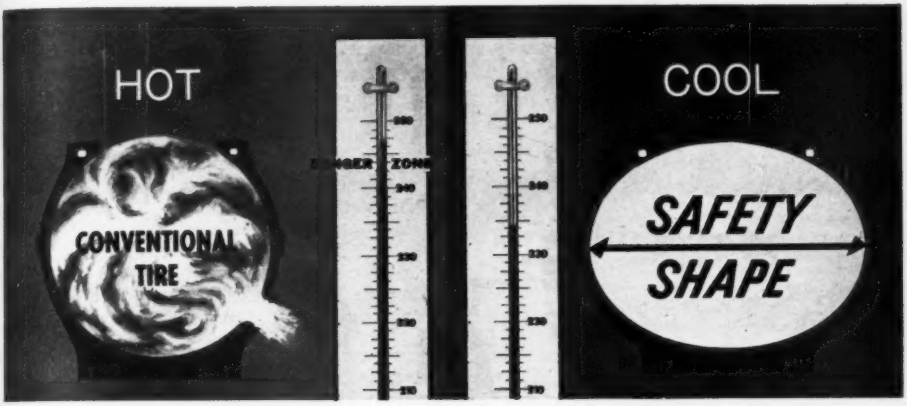
J. M. Connor
Sec'y., B. C. Official Scaler's Association
Vancouver, British Columbia

With such low mileage to work with, per-

[*Continued on page* 54]

RADICALLY NEW U. S. ROYAL LOW PROFILE SAFETY SHAPE TIRES

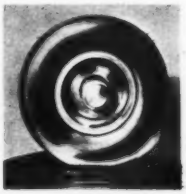
BEAT DEADLY HEAT, GIVE UP TO 35% MORE MILEAGE, SAVE GAS — YET COST NO MORE!



HEAT HATES TIRES . . . WEARS 'EM OUT . . . BURNS 'EM OUT . . . BLOWS 'EM OUT! BUT NEW SAFETY-SHAPE TIRES DON'T FLEX AS MUCH, DON'T WORK AS HARD, RUN COOLER, LAST LONGER!

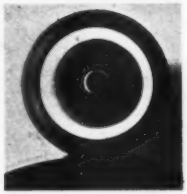
CONVENTIONAL TIRE

In world's largest tire "torture chamber", U. S. Royal tests tires 24 hours a day, 279 million miles a year. Above, a conventional tire fails on a high-speed test wheel after only 72 minutes. *Murdered by heat!*



SAFETY-SHAPE TIRE

New U. S. Royal Low Profile *Safety-Shape* tire passes "torture test" in a breeze. Keeps running hour after hour at high speeds. Lower, wider construction means less flexing, less heat, triple the high-speed endurance!



As your tires revolve, they constantly *flex*. This creates heat that can *murder* your tires. (*It's like bending a paper clip to and fro . . . the metal gets hot and finally snaps!*) U. S. Royal beats the heat with a new type of tire—the Low Profile *Safety-Shape* tire. This lower, wider tire doesn't flex as much as conventional tires. Runs cooler. Stays below the crucial heat danger zone. Gives up to 35% *more miles*. This easier-rolling tire *even cuts your gas bills!* Yet it costs no more than conventional tires. Ask your U. S. Royal Dealer.

5 WAYS BETTER THAN CONVENTIONAL TIRES!

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- **HIGH-SPEED ENDURANCE**—3 times better
- **TURNPIKE GAS ECONOMY**—6-12 extra miles per tankful
- **TURNING EFFORT**—20% more stability on curves
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Mail For McCahill

[*Continued from page 52*]

haps your best bet would be so much a day for the use of your car up to 4,000 miles a year. Beyond this, additional payments to be made for extra mileage at, say, ten cents a mile. According to your figures, at 4,000 miles annually the small car would only get $320 and a large car would get $440. This isn't enough to cover insurance, upkeep and depreciation, unless your boys start off with second-hand junkers in the first place.

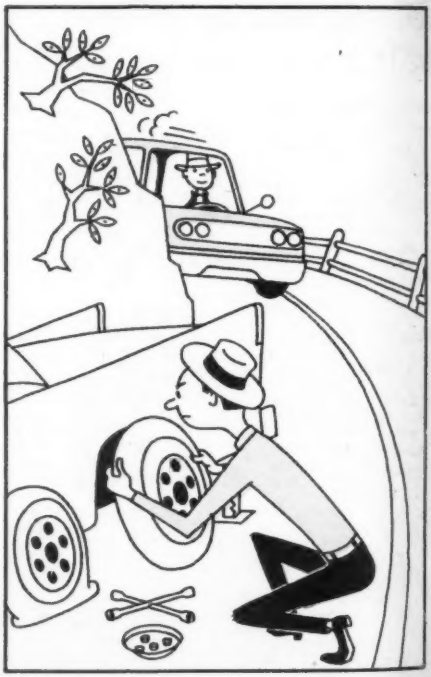
● *Hasn't it been a long time since you've written any new books? Do you have any more wonderful ones coming up?*

Jim McMichael
Next Room

Odd you should ask that, Jim. It so happens Tom McCahill's new book, Today's Sports And Competition Cars, has just hit the market. Published by Prentice-Hall at $3.95, it is available at all first-class book stores and possibly in the smoking lounge at Stillman's Gym.

—Tom McCahill

DON'T DO-ITS



DU PONT

PAINT NEWS

NEW DU PONT LUCITE ACRYLIC HOUSE PAINT

TRADEMARK

LASTS 50% LONGER

DRIES IN 30 MINUTES

Here's the greatest paint discovery since Du Pont quick-drying auto finishes: Du Pont "Lucite" Acrylic House Paint. It's so durable it lasts 50% longer than ordinary paints . . . can save you hundreds in repainting costs. An acrylic emulsion, it is recommended for use only over No. 38 Blister Resistant Wood Primer on new wood or on old surfaces with the finish completely removed.

SOLVES BLISTERING PROBLEM

For a long time blistering has been home owners' most serious paint problem. Until now, it has been an almost insolvable, recurring predicament. The combination of No. 38 Primer and "Lucite" Acrylic House Paint can give unprecedented protection against blistering because it is chemically engineered to allow moisture vapor to breathe through while shutting out water penetration.

EASIEST PAINT TO APPLY

"Lucite" Acrylic House Paint flows on more smoothly and evenly than any paint you ever used. It dries in 30 minutes and it's ready for a second coat in one hour! Thus you can save a lot of time and money by avoiding a great deal of ladder shifting that is usually necessary. One coat covers, two give maximum protection and durability. Water is all you need for thinning. And it's so easy to clean up . . . fresh paint spots wipe off with a damp cloth. Soap and water clean your brushes. This amazing new paint and primer are now ready for immediate delivery at your Du Pont Paint Dealer's. You'll find his name in the Yellow Pages of your phone book.

Buy the paint that's worth the work! Your time is too valuable to risk on "bargain" paints. Buy Du Pont Paint and you know you're getting the most modern finishes made . . . and that the beauty will last. Du Pont Paint Chemistry assures you of that.

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. . . through Chemistry

get a real head start in work you like!

choose
qualify
know
...before
enlistment

It's up to you! The Army's new "Choose-it-Yourself" System lets you choose your vocational training before you enlist! Here's how it works:

1. CHOOSE... before enlistment! Choose your training from fields like Metal Working, Electronics, Motor Maintenance, Guided Missiles, Radar & TV Repair—and many more.

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AND THERE'S NO OBLIGATION! Choose, qualify and know—without the slightest obligation to enlist. You get the Army training you like—guaranteed in writing—or you don't enlist! This week, see your Army recruiter and choose from his complete list of available fields.

CHOOSE IT YOURSELF **VOCATIONAL TRAINING SYSTEM**

US ARMY

MECHANIX ILLUSTRATED
September 1959

WORKHORSES of the Sky

By Frank Tinsley

HOW would you like to pick up your summer cottage and move it to Florida for the winter? Or, during the dog-days of August, loft it to some cool wilderness lake? Or would you prefer to airlift your comfortable houseboat across the wilds of Canada and, in a matter of hours, set her down on one of the uncrowded inlets of Hudson's Bay? What a way that would be to spend a wonderful vacation!

Sound crazy? It might have seemed so a year or two ago but not now. The advent of a practical sky-hook, a power-packed "flying crane" built to lift and carry heavy loads, has revolutionized our ideas about transportation. Long dreamed of by industrialists, construction

engineers and the military forces, a flying towboat is now being tested at the Army's helicopter center at Fort Bragg, N. C. It is only an experimental model, put together with off-the-shelf parts of other copters. But even this preliminary model can hoist a six-ton load right out of a basket and fly it anywhere in the country.

Like the first practical helicopter, the 1939 VS-300, the new S-60 flying crane (see preceding page and the front cover) is a product of Sikorsky engineering genius. It combines the five-bladed rotor and twin reciprocating powerplants of the S-56 Marine troop carrier, with a stripped down, girder-like body. At the front end of this lifting beam is an underslung cabin for the crew and at the other, the tail surfaces and trim rotor. Completely surrounded by glass for maximum visibility, the pilot perches in a unique swivelling seat. During the jockeying necessary to latch on to a load, he can face backward to keep an eye on his target. After take-off, he swings around and faces forward for flight. Simple—but new!

This S-60 has been a fast mover. Emerging from the assembly hangars at Stratford, Conn., in April, it headed for an Army helicopter exhibition at Fort Bragg to show what it could do. It air-lifted missiles, planted rows of two-ton telephone poles and lowered 4,500-pound floor sections in place on an army pontoon bridge. Currently, it is undergoing a complete program of flight testing.

Although the S-60 provides an immediate, moderate-cost answer to the flying crane problem, Sikorsky engineers

NIGHTCLUB in the sky tours over city, suspended from a multiple hitch of flying cranes.

COMMUTER COPTER, designed for short haul service, has a bus-like pod slung underneath.

are far from satisfied. Far larger and more powerful models are taking shape on their drawing boards, incorporating a wide variety of forms and powerplants. Among them is a twin-boom configuration that eliminates the tail fin and wheel to permit free access from the rear. Cargo and passenger pods can be backed into position and hooked up with ease and accuracy. Various types and combinations of gas turbines are under consideration, including General Electric T-64s and Pratt & Whitney JT-12s. These high-power, lightweight engines, driving outsized six-bladed rotors, promise a tremendous stepup in lifting capacity within the next year or so. Some of the models now in the design stage are expected to carry loads up to 50 tons.

"Such machines," says Lee S. Johnson, Sikorsky general manager, "could revolutionize the transportation business." He sees the military and commercial uses of the aerial crane "limited only by man's imagination." MI's editors agree and some of these future possibilities are explored and illustrated here. Special consideration has been given to extending their prospective earning power. With this in mind, let's move ahead to 1965 and take a look at a typical day in the life of a flying crane.

The "little" 25-tonners start their daily chores in the thousands of suburban communities surrounding our major cities. Instead of the commuter heading for the railroad station in his own car, tomorrow's wage slave will pick up his briefcase and stroll to a

BRIDGE BUILDING and other construction jobs would be a simple task for cranes in tandem.

nearby street corner or road junction. There he boards a streamlined vehicle resembling a trailer bus towed by a light prime mover. It accommodates 100 or more commuters, seated three abreast on either side of a central aisle.

After a few more stops, the bus heads for the community heliport. There, straddling the take-off circles, are three or four flying cranes, each scheduled for a different midtown landing point. The bus is backed beneath its appropriate crane, locked into place and the conglomerate machine, now resembling a conventional passenger copter, takes off. Fifteen minutes later, it slants downward to a rooftop landing and the commuters race for the elevators.

Our crane can then return to the suburb for later rush-hour loads or, still retaining its passenger pod, be diverted to an inter-city run. Or it may change character completely. Dropping off the pod at an outlying parking field, it could proceed to a regular construction job or be scheduled for a private hauling chore. During the spring months, for instance, boats too heavy for road trailing could be airlifted from inland points and launched at selected harbors. In the fall, they will make the return trip to the owner's back yard.

As an extension of present boating practice in which heavy power and sailing craft are shipped to distant cruise points on ocean-going freighters, tomorrow's boats can be flown up and down the coastlines in a fraction of the time. Instead of making the long water run

from Maine to Florida, or Seattle to Catalina, a privately owned or charter boat can be delivered at any anchorage in a matter of hours.

The same process applies to any heavy load. Manufactured goods, household furniture, rush shipments of all sorts, even perishable fruits and vegetables can be packed in weather-proof or insulated cargo containers and flown expeditiously to their destinations. In modern America, house moving has become a familiar phenomena, especially on the West Coast. Jacking up the usual dwelling and rolling it over the road can be a tedious and expensive procedure. Power and phone lines must be bypassed or cut, streams and railroads detoured and motor traffic interrupted. How much easier it will be to lift one's house straight up out of its surrounding neighbors, airlift it to another community and set it gently down on prepared foundations.

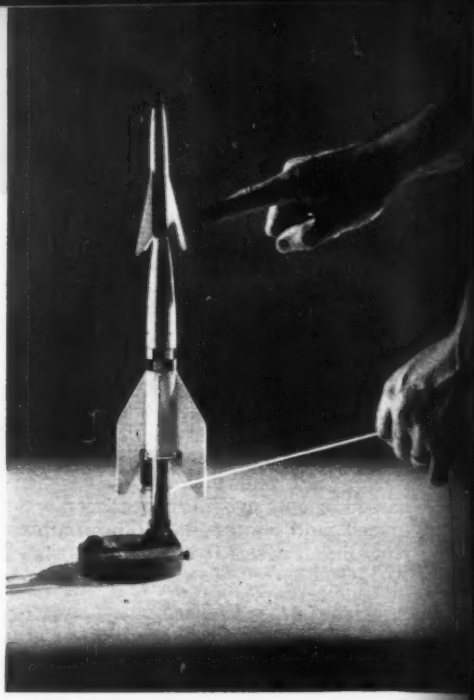
In the construction field, the copter sky-hook fills a long felt need. Even with lofty top extensions and elaborate rigging, there is a limit to the practical length of crane booms. There is also a limit to their lifting capacity, which means that steelwork must be erected in bits and pieces. Handling large subassemblies is obviously more economical and it is here that the copter crane can do the trick—either singly or in multiple hitches. It is not beyond the bounds of possibility to pre-fabricate a whole skyscraper floor in an outlying work yard, then to pick up the unit, complete with [*Continued on page* 163]

HOUSE MOVING by air-lift could result in homes made in factories, flown to prepared foundations anywhere.

FRANK TINSLE

Now See This!

NAUTICAL NIFTY is new German Diesel-powered lifeboat that is completely enclosed. It seats 40 people and rights itself automatically from any position. Bubble domes permit constant observation. A comfortable, safe craft for hopeful survivors.



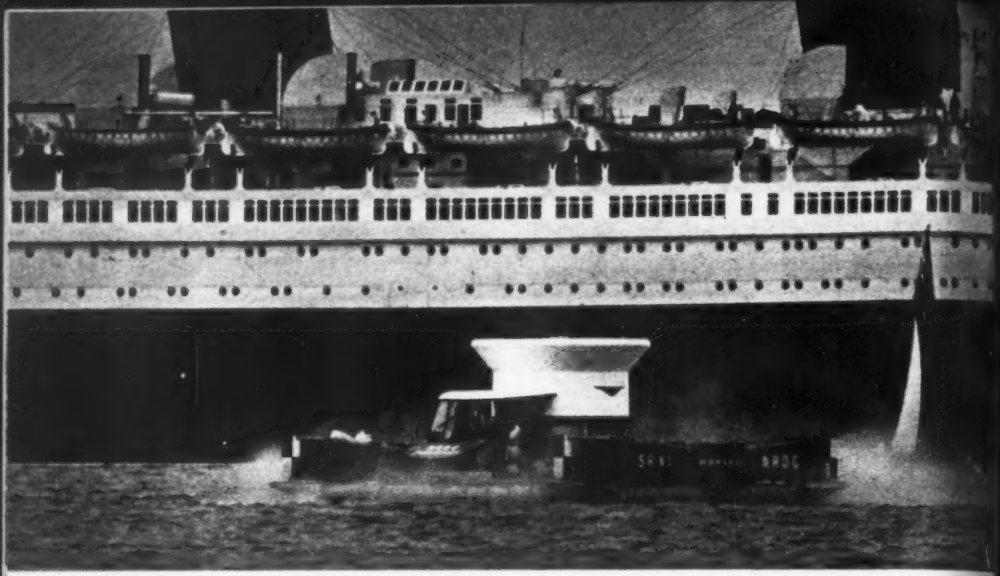
LUNAR I is a two-stage toy rocket that is powered by a safe bicarbonate-citric mixture. After preparing Lunar I for launching, a countdown flasher on the launching pad is turned on. Following a 30-second countdown, the rockets are fired by string trigger. The second stage soars to 300 feet. It can be retrieved, used again. The plastic rocket is over 16 inches long and comes with ten-page instruction book, moon travel data. $4.98. Scientific Products Co., Richmond, Va.

SERVE 'em up piping hot with this novel Westinghouse Dog-O-Matic which cooks a half dozen tasty doggies in just 90 seconds. Wieners attach to electrode in bottom half of cooker. The lid is closed and electricity cooks them. Dog-O-Matic's price is $9.95.

SIMCA Grande Large is one of two new economy models now sold in U. S. by Chrysler. French cutie has 48-hp, four-cylinder engine, four-speed forward transmission. Five-passenger car has 92-inch wheelbase. $1,698 at New York Port of Entry.

MIMI, a pretty smooth little article herself, is pushing another smooth operator, the welded steel constructed Rol-A-Scoop. The all-purpose cart is easily maneuvered by pushing or pulling the rotating four-position handle to spread, scrape or level dirt, scoop up snow, move trash cans or supplies, clean up leaves or sweepings, plus many other home or factory chores. Rol-A-Scoop (patent pending) is a year-round-use, 39-pound vehicle. Price: $19.95. Alumco, 1050 N. B'way, Escondido 50, Calif., is the maker.

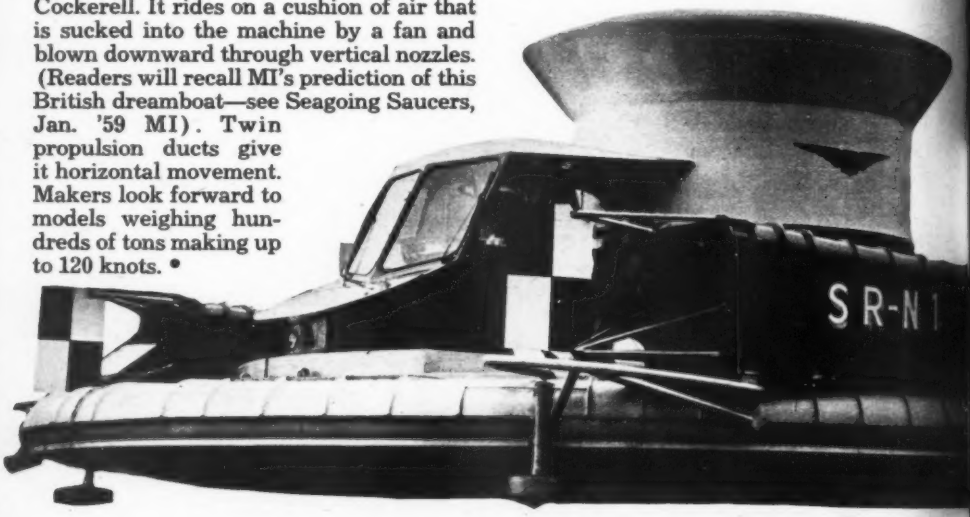
MIMI



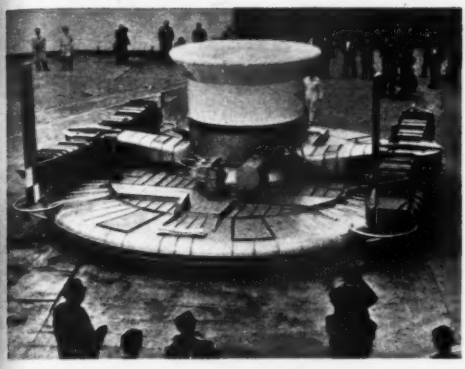
HOVERCRAFT rises next to Queen Mary. Builders envision saucer liners plying trade lines.

This Flying Saucer Really Flies!

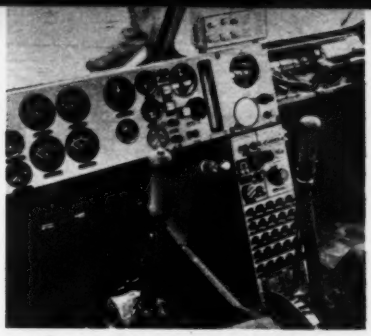
SAUNDERS-ROE, Ltd., British aircraft builders, claims to have ushered in another new era of transportation with the first public showing of their wave-skimming Hovercraft—and they may very well have done it. The Hovercraft is the invention of boat builder C. S. Cockerell. It rides on a cushion of air that is sucked into the machine by a fan and blown downward through vertical nozzles. (Readers will recall MI's prediction of this British dreamboat—see Seagoing Saucers, Jan. '59 MI). Twin propulsion ducts give it horizontal movement. Makers look forward to models weighing hundreds of tons making up to 120 knots. •

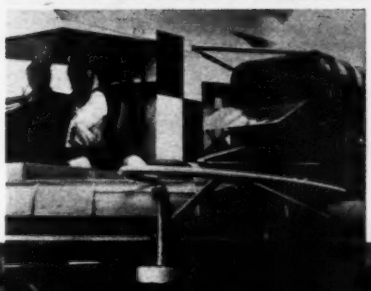


SAUNDERS-ROE, LTD., calls it SR-N1. It uses a 450-hp copter engine, weighs four tons.

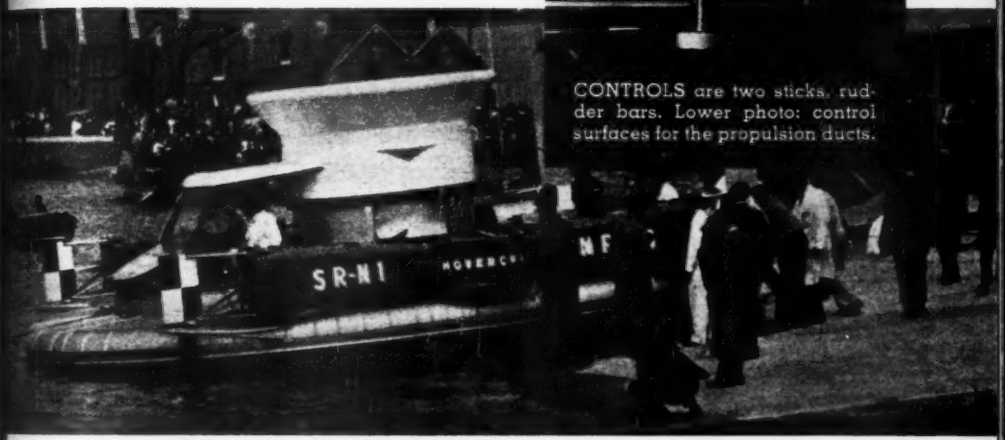


REAR VIEW of the grounded Hovercraft. It can be maneuvered easily atop 15-inch air cushion.

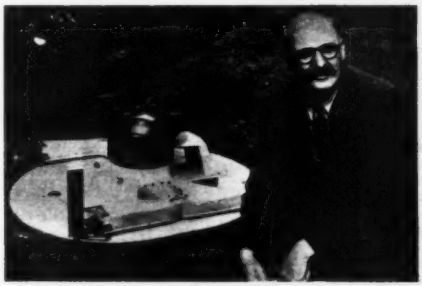




CONTROLS are two sticks, rudder bars. Lower photo: control surfaces for the propulsion ducts.

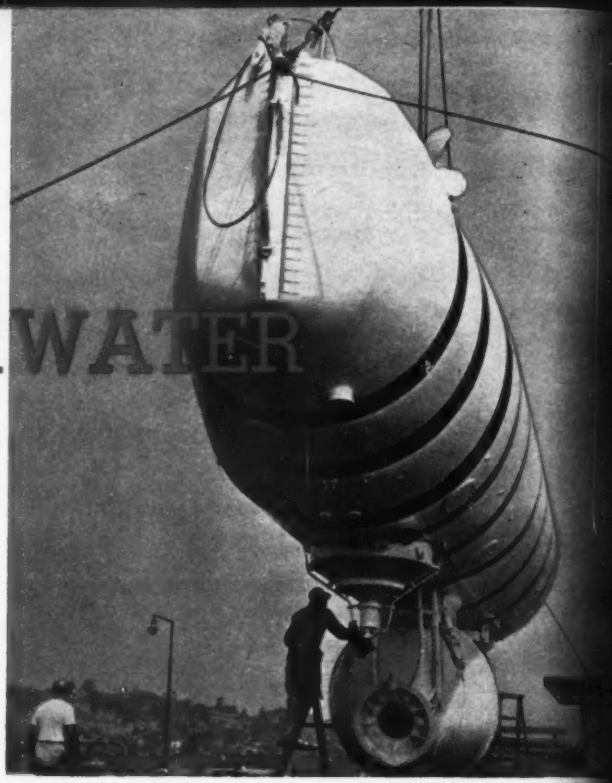


GO-EVERYWHERE vehicle can travel on trapped air cushion over ice, water, marsh or desert.



INVENTOR C. S. Cockerell, British boat builder, poses with a model of his brainchild.

UNDERWATER BLIMP



SUBMERSIBLE BLIMP is cleaned up before its first dunk into the Pacific ocean and a try at record 20,000-ft. dive.

RESEARCH down deep will be the function of the U.S. Navy's latest blimp, the Trieste, a bathyscaphe for deep-sea diving. The Navy recently acquired its newest submersible for $200,000 from famous Swiss-born oceanographer Auguste Piccard. The craft is now being prepared for underwater tests near the Navy's Electronics Laboratory at San Diego, Calif. The purpose of these experiments is to help the Navy design submarines that can go deeper than the present 750-ft. level. The Trieste has already been taken to a record 12,000 ft. by Piccard but an attempt will be made to equal this mark and to eventually submerge to 20,000 ft.

The 125-ton bathyscaphe gets its buoyancy from 28,000 gallons of gasoline, which is lighter than water. The interior is loaded with scientific instruments and the bathysphere under the boat is built to withstand the ocean's great pressure. •

TRIESTE weighs 125 tons and is equipped with scientific instruments to probe depths.

BRIGHT IDEA AWARD MECHANIX ILLUSTRATED

CAR-B-CUE

WIN $50

MI will award $50 each month to the first person who tells us of a new and useful gadget that is patented and in production. Manufacturers are also eligible for this award. Pictures and a description should be sent to Bright Ideas Editor, Mechanix Illustrated, 67 West 44th Street, New York 36, N. Y.

CAR-B-CUE hot dog cooker and bun warmer is designed for road snacks. It plugs into any standard (six or 12-volt system) cigarette lighter, uses no more current than the car radio and weighs only 15 oz. The unit rests on the glove compartment door and takes about five minutes to cook two franks to tasty perfection. Car-B-Cue is $7.98. Don E. Bailey & Assoc., 5950 S. Normandie Ave., Los Angeles 44, Calif. Don't forget to bring the mustard. •

AEROCYNE
EYE

STOPPERS

WIDE-OPEN, WINGLESS aircraft called the Aerodyne, still highly experimental, is shown during a roll-out at Collins Radio Company's Aeronautics Research Laboratories, Cedar Rapids, Iowa. Its designer is Dr. Alexander Lippisch, who made history a while back with the world's first rocket-powered fighter, the Messerschmitt ME-163. The Aerodyne achieves vertical takeoff and landing capabilities and makes the change to and from forward flight by channeling the airflow or thrust from its two contra-rotating props right through its own fuselage and deflecting it downward and out through controllable vents in its belly—you should excuse the expression. This means you don't need any wings. Anyway, it has no cockpit yet, so don't look for one. Full-scale model is for wind-tunnel testing. Aerodyne has joint Army-Navy backing.

FUNNY-FACE sarge models two-way radio helmet, heat mask, armor, automatic rifle.

SILLY CYCLE, upside down with front wheel reversed, has very few advantages.

POLITE POLLY spoons up scrambled eggs neatly. Unusual, as most people use a fork.

SMALL RIVERS are a home for largemouths; they lurk beneath brush piles and overhanging trees.

Hunting and Fishing

FLY FISHING FOR BASS

By Wynn Davis

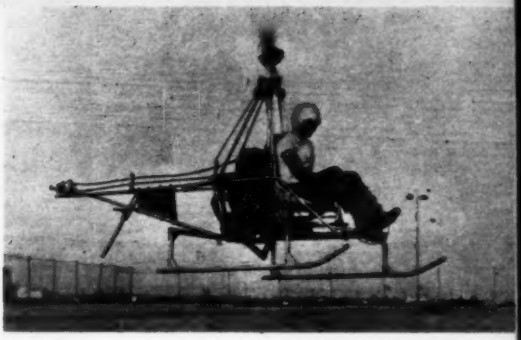
IN September millions of trout anglers reluctantly hang up their fly rods. To bass fishermen, on the other hand, the sumac turning red signals that the waters are cooling off and hungry bass are once more full of fight.

The first bass I ever caught on a fly rod were largemouths. I took them from a mile-long stretch of the Gunpowder River below the old Loch Raven dam, about 35 years ago. This is a little river, hardly 50 feet across, just north of Baltimore. I had often noticed bass rising under the overhanging willows downriver, so I thought I'd make a pass at the fish with my trout fly rod. I figured a salmon-sized streamer fly about three inches long, tied to resemble the shiners in the river, might get action. But I couldn't get even a nod from those fish. After a fruitless hour, I tied a small double-bladed spinner on behind the streamer.

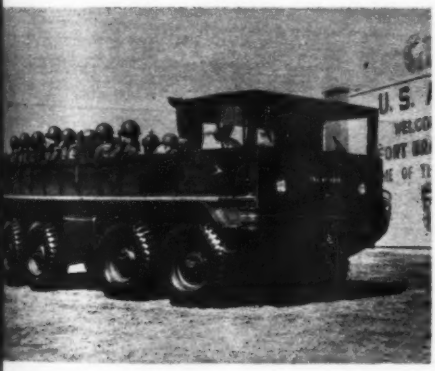
My luck changed immediately. Something hit that fly so hard it almost jerked the rod from my grasp. This turned out to be a five-pound largemouth that slugged it out all the way into my trout net. That little adventure opened up a [*Continued on page* 150]

Now See This!

SPACE ACE wears new Mark IV space suit developed by B. F. Goodrich. Suit weighs about 20 pounds and consists of four basic parts—torso, helmet, gloves and boots. The full-pressure suit is designed to be worn at altitudes above 45,000 feet. It gives the wearer remarkable mobility and it could be used to play "moon ball" where weak gravity would enable a normal earth-type homerun to travel at least a half mile.



HOBBYCOPTER is new midget whirlybird that is being marketed in kit form by Adams-Wilson Helicopters, Inc., Lakewood, Calif. The one-man do-it-yourself job weighs 350 pounds and sports a 40-hp motorcycle engine that has a top speed of 60 mph and a 120-mile range. HobbyCopter can perform all the maneuvers of a full-size craft. It delivers up to 30 miles per gallon and has an estimated ceiling of about 8,000 feet.

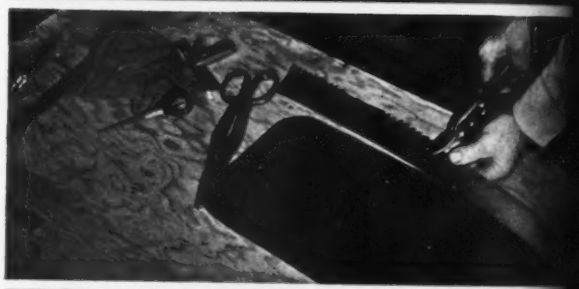


LIGHTWEIGHT aluminum truck carries 16 GIs wearing full field packs. The 2½-ton truck traverses the most rugged terrain, can be parachuted from a plane and can also be floated across lakes. It was designed and built for the Army by Chrysler Corp. The truck features eight-wheel drive and each wheel is independently suspended with torsion bars on economy rig.

KING-SIZE station wagon is International Harvester's Travelall which is now available with a sun roof. IH claims that its 144 cubic feet of cargo space makes it the roomiest wagon in the industry. Travelall is designed for family, sportsmen and is available with automatic transmission, power steering, power brakes, air conditioning, four-wheel drive—and sun roof.

ANTIQUE FENDER BENDER

FENDER bending doesn't just happen. It takes a lot of work, especially when you need a pair for an antique car you're restoring. That's when Californian Howard Caccia decided to build the darn things himself. When other antique owners saw them they clamored for sets for their classics. Caccia set up a shop in San Luis Obispo and went into antique fender-making full time. The former garage owner specializes in Model Ts but he can also make other flat-type fenders for antiques if you send him the old one or what's left of it. •

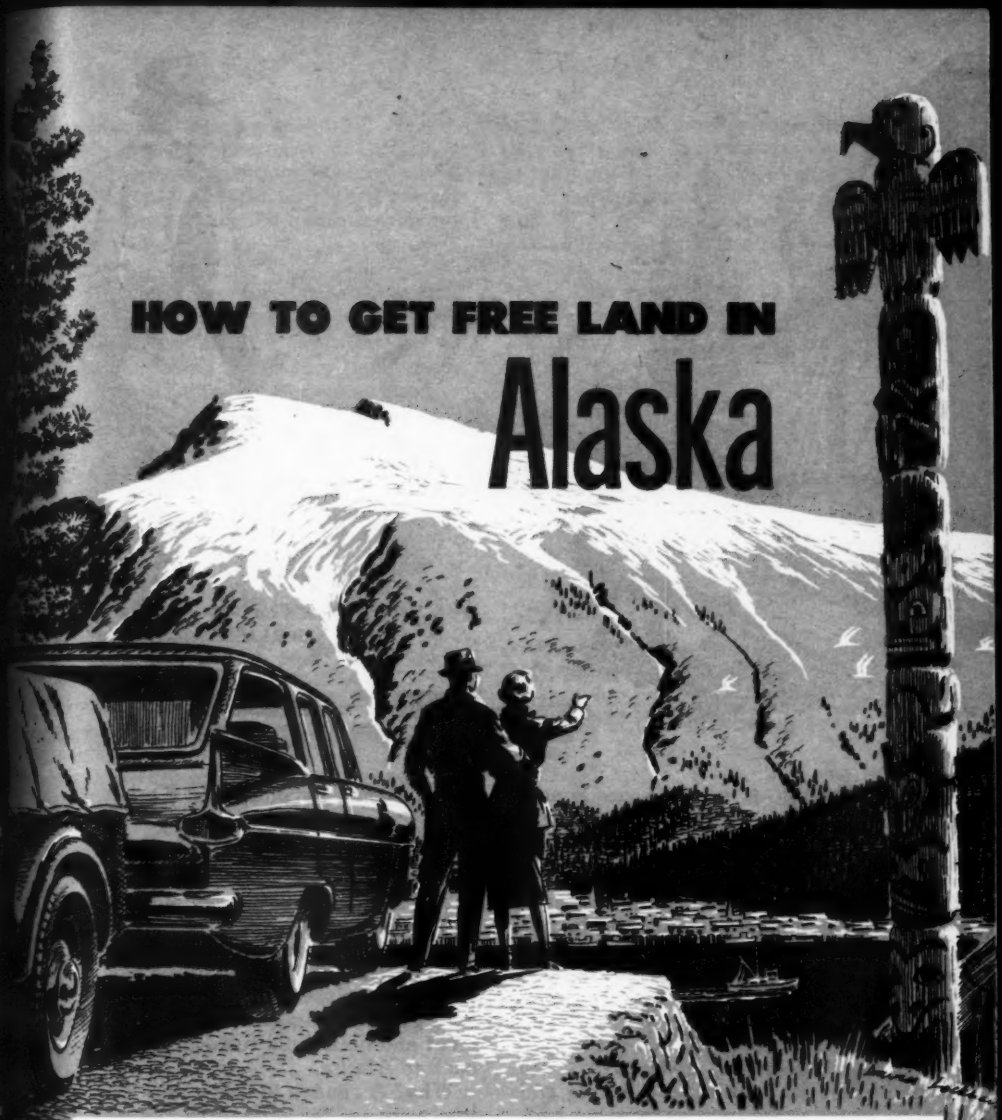


ELECTRIC shears cut out top fender section, shown above.

LIP strip, middle photo, is serrated so it can be bent.

CLAMPS, right, bend flanges over both sides of the jig.

FINISHED fender, far right, for 1913-14 Model T is $25.



HOW TO GET FREE LAND IN Alaska

By Harry Kursh

IT was eight years ago that Roy Wilson, a 34-year-old Indiana steelworker, fed up with city life and the grime of his job, packed up his wife and two kids and took off for Alaska. From then on life was pretty rough. The trip over the Alaska Highway, mostly a gravel road under and over majestic mountains, gave Roy his first taste of pioneering.

In Anchorage he got a small apartment at $165 a month. He picked up a bargain in a five-acre tract of land from Uncle Sam

HOMESTEADING in Alaska means hard work but the young spirit of the land is infectious.

and started building his own house. It was five years before he could earn enough to complete it; his wife helped pour concrete, move boulders, dig footings and clear brush.

Meanwhile, Roy tried his hand at a variety of occupations—laborer, electrician, fur-trapper, salmon-fisherman, insurance salesman, carpenter. He found time for hunting and fishing and once his wife shot a moose from her bedroom window.

But it was two years ago when Roy found his niche. Singlehanded, he went into the home-building business. Now he runs a ten-man crew and averages a net income of $22,000 a year. But Roy says it is only the beginning. From now on his future is unlimited.

Last year Ben Calderon, a hefty, handsome Brooklynite in his early 40's, was vacationing with his wife in Alaska. He got so excited over the youthful spirit of the land that he went out and staked a homestead of his own. Then he went back to New York where he had a substantial share in a large business he had helped build. Recently I saw Ben wave goodbye for good to all this. Seated behind the wheel of his new International Harvester Travelall, loaded with guns, fishing gear, camping equipment and household furniture, he went back to Alaska.

Why? A chance to live a new kind of life, a chance for adventure and maybe a chance to strike it rich. Alaska is the only land left in America that can promise all this. It is truly the last frontier.

Alaska has vast resources to be exploited, minerals to be discovered, lands to be opened for farming. There are areas just as lush as San Fernando Valley and some areas in the frozen north where you couldn't grow a thing—but even here one man has started a profitable business arranging polar bear hunts! And one day the frozen north may be America's greatest travel at-

traction and hunting ground.

The key to opportunity in Alaska is *land*. Land for farming, business sites, homes, hotels, hunting or fishing camps, prospecting. Land for gambling on oil and gas. Land is the key to everyone's future in Alaska.

Some Alaskans have already struck it rich with land. Back in 1950, Frank and Felicia Martindale went up to Alaska to stake a 160-acre homestead. They got the land free, worked hard to clear it. Now they are in the midst of negotiating sale of the homestead at $1,500 per acre!

What makes this possible? Simply the old law of supply and demand in real estate. About a dozen years ago you could stand in the center of Anchorage, heave a stone and where it fell you could claim a homestead. But since then new roads have been built, population has zoomed. Land close to Anchorage is worth a fortune now. Presumably homestead land farther out will increase in value with the passage of time.

Alaska is twice the size of Texas—yet there are only about 225,000 people, including some 20,000 GIs. The bulk of the population is centered around three towns: Juneau, Fairbanks and Anchorage. Outside of these towns, the living may be rugged—no roads, no electricity, no running water.

Alaska has to import almost 90 per cent of everything it needs—so prices are much higher up there. On the average you can expect to buy things at prices that range from 25 per cent to 100 per cent higher than in the Old 48. The higher cost of living is balanced by higher wages but steady jobs are not plentiful. In many instances, only the skilled worker—the carpenter, electrician, plumber, or electronics technician—can expect to get year-round work. However, since employment conditions are changing rapidly, it's a good idea to get the latest facts, and also information on how and where to get jobs, by writing to: The Alaska Employment Security Commission, Box 2661, Juneau, Alaska.

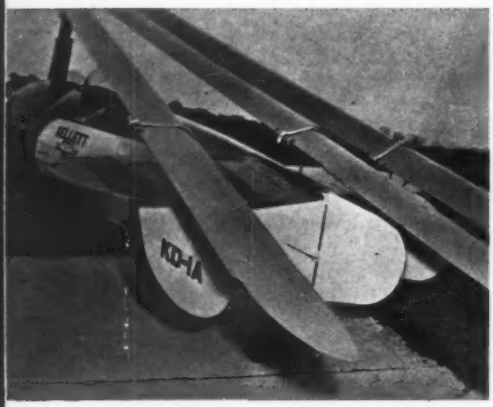
There are three ways into Alaska—boat, plane and auto. Boat trips are for tourists and cost more than flying. To get boat information, write to the Chamber of Commerce of Portland, Ore., or Seattle, Wash. You can get a free, detailed guide to the Alaska Highway by writing to the Bureau of Public Roads, De- [*Continued on page* 160]

LAND-HUNTERS are thronging to Alaska but there is still room there—plus the chance of oil.

FLYING is much like plane flight: conventional prop combines with auto-rotation.

REBIRTH OF THE AUTOGIRO

FARMERS who want a crop duster with low, slow, safe flight capability and short takeoff and landing needs can have it for slightly over half the price of a helicopter of comparable size. Kellet Aircraft Corp., Willow Grove, Pa., has dusted off its 25-year-old autogiro and is offering it for $27,500 to an age that knows the value of rotary-wing aircraft. Free-wheeling rotors have no fancy, costly gearbox. Plane pilots need little instruction on it. •

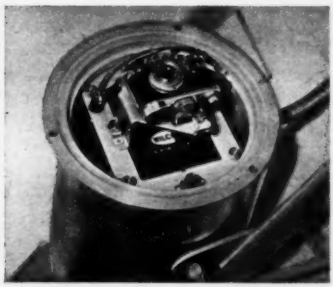


FOLDING ROTORS are handy in flight, too—they blow dust down, spare the pilot's lungs.

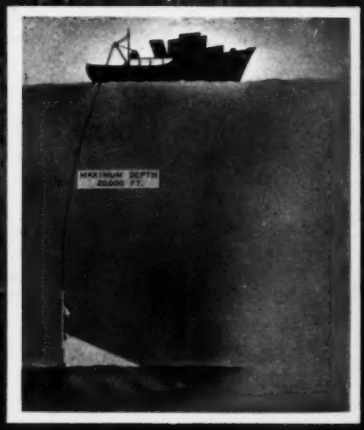
New Deep-Sea Camera

OCEAN bottom exploration is being pushed ahead by our Navy Electronics Laboratory, San Diego, with this electronic camera that goes down 20,000 feet. •

RIG includes camera, power, electronic flash. Purpose is study of deep-sea sediments, life, minerals.

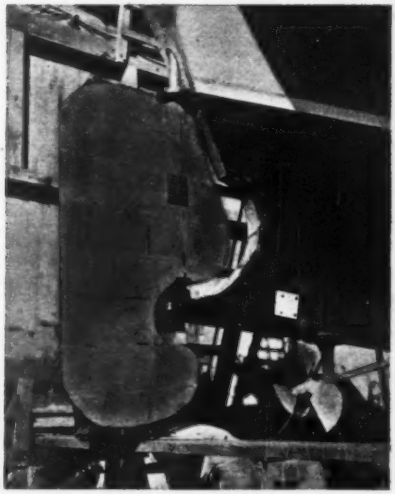


HIGH-PRESSURE aluminum case holds 32-frame camera, flash unit.

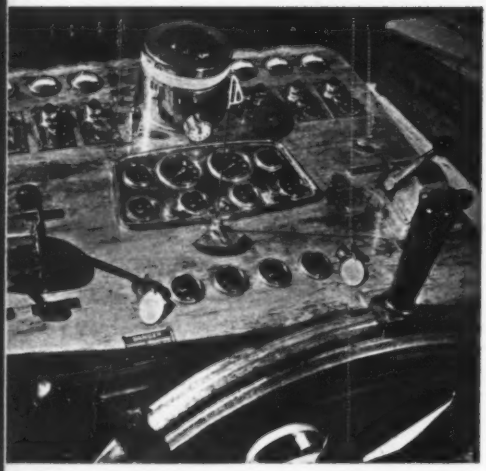


BOTTOM CONTACT of lead weight trips camera, photographs scenes of another existence.

WORLD'S LARGEST Catamaran



HOLLOW steel plate rudders are welded to three-inch cold-rolled steel posts.



BIG CAT'S instrument panel includes all necessary instruments for a ship at sea.

MAIN CABIN has Bendix depth control recorder, engine controls, radio transmitter.

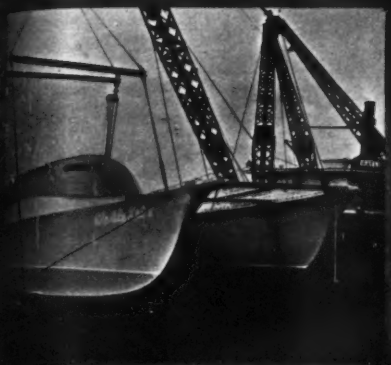
THEY call her the Ale Ale Kai V but she's known affectionately as the "Big Cat." She's a trim 100 feet and the largest catamaran afloat. Kaiser-built, the $100,000 craft was recently purchased by the Gray Line of Hawaii where she now skims over the water on regular commercial runs that give tourists a first-hand look at historic Pearl Harbor.

The Big Cat tips the beam at 30 tons. She is 30-feet wide and has a 50-inch draft. When the wind comes up she can hoist 8,500 square feet of sail power. She also has twin 225-hp Chrysler marine engines—one in each hull—and each one drives a three-bladed bronze propeller. Her 268-gallon capacity fuel tank gives her a cruising range of some 30 hours.

She can accommodate 95 tourists and is equipped with 14 bunks, two refrigerators, an electronic oven, an ice cube maker, three electrically-operated heads, two showers and a two-way radio.

The Big Cat has a steering wheel in the teak wood main cabin and one at the cabin nose. Here also are four-gimballed tables—the tops remain horizontal in all kinds of seas.

All in all, she's quite a boat. •



HULLS are each divided into eight watertight compartments. The mast, of laminated box construction, towers 105 feet above Ale Ale Kai V.

MAGNETIZED LIGHTER would cling conveniently to dashboards of small, lighterless cars. Charles H. Schuck, New York, N. Y.

POCKET INSIDE HAT so hat can carry its own rain cover—which is only just according to Jimmy Kimbrough, Auburn, Ala.

INVENTIONS WANTED!

Is there a gadget you think should be invented? If so, send its description to Inventions Wanted Editor, MECHANIX ILLUSTRATED, 67 West 44 St., N.Y. 36, N.Y. Each one printed will be awarded $5.

SQUARE JAR CAP (with circular thread, of course) would be easier to take off or tighten. Joyce Borowicz, Bloomfield, N. J.

SPRINKLER SPOUT that would slip on a common pail or similar vessel, convert it to a watering can. Lee Zehnder, Ambridge, Pa.

CLOCK LAMP you set to go off after you fall asleep reading, or to come on for three a.m. rising. Jim McDowell, Catlettsburg, Ky.

MONEY MAKING IDEA

MINUTE-LAUNCHING with the fork-lift is a free service for all marina boat-owners.

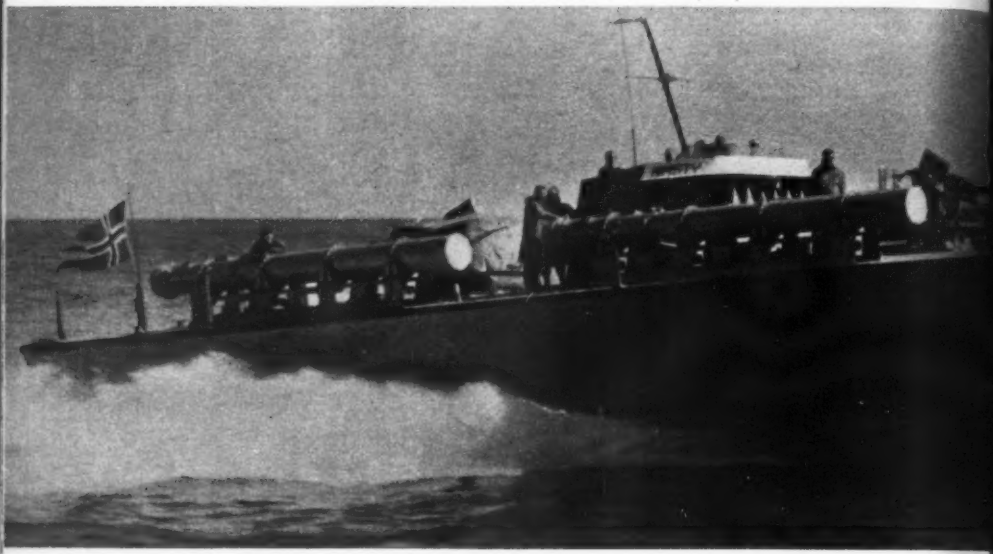
DOUBLE BERTHS hold the boats whenever their owners are not actually using them.

HE FILES BOATS

By Richard Magruder

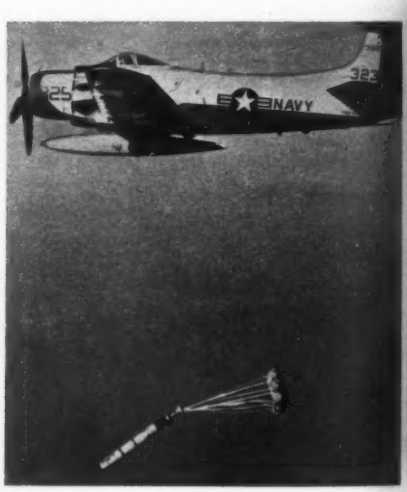
O. L. "SWEDE" ERICSON'S nickname, which followed him through an 18-year flying career with the Navy and TWA, may not be very original but the big, soft-spoken Minnesotan's marina in Shalimar, Fla., is the most unusual one in the business. It's a dry- [*Continued on page* 164]

IT'S NEW

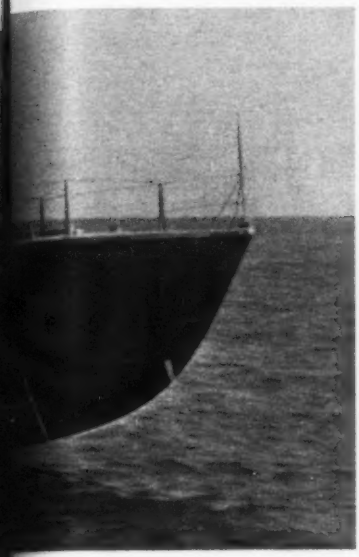


"NASTY" 70-mph torpedo boat is largest, fastest of the breed, say Norwegian builders.

LETTER PERFECT. Italian painter Vincenzo Dardari points to two ten-lire stamps he painted beside real five-lire one on an envelope which got by postal authorities.



ELECTRICALLY propelled anti-submarine torpedo automatically seeks out, destroys its target. Parachute guides descent to water, is then released from U. S. Navy killer.



SPACE-EYE TV system is designed for spacecraft, missile uses. Lockheed devised tiny nine-lb. unit with 1,000-mile transmitting range, picture quality comparable to commercial station.

TELEPHONE SHELF is designed for use where booths are unsuitable because of size. New feature is edge-on coin slots. Bell Telephone devised unit.

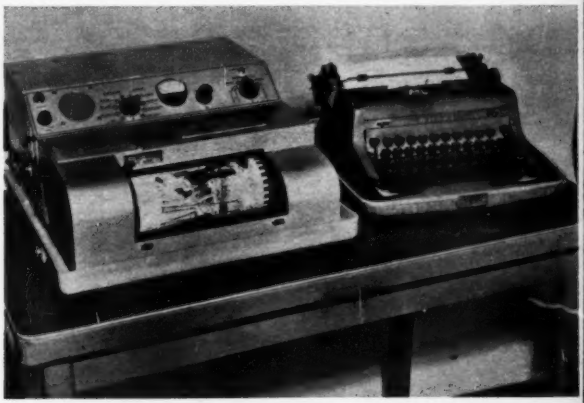
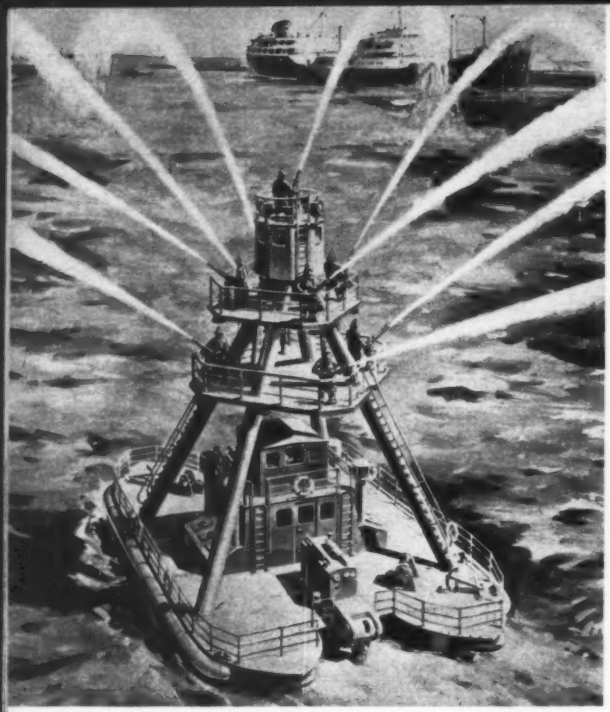


PHOTO TRANSMITTER designed to work as portable or fixed installation is less than 50 lbs., slightly larger than portable typewriter, right. United Press International will use new machine.

CONTINUED...



FIRE-FIGHTING FLOAT being built in Wales rides on 60-ft. pontoons. Diesel-powered craft's nine four-in. nozzles can emit spray of water or foam.

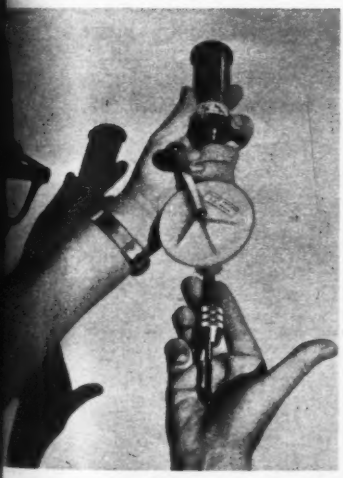
SPIRAL RAMP hangs from ceiling by 140 aluminum rods. The 245-ft. ramp is in plant of Convair Astronautics, the builders of the Atlas missile.

FAST MAN is 23-year-old do-it-yourself Frenchman, Jean Paul Botazzi. It took him a year to build his streamlined motorcycle which is powered by an old auto engine and capable of hitting 105 mph.

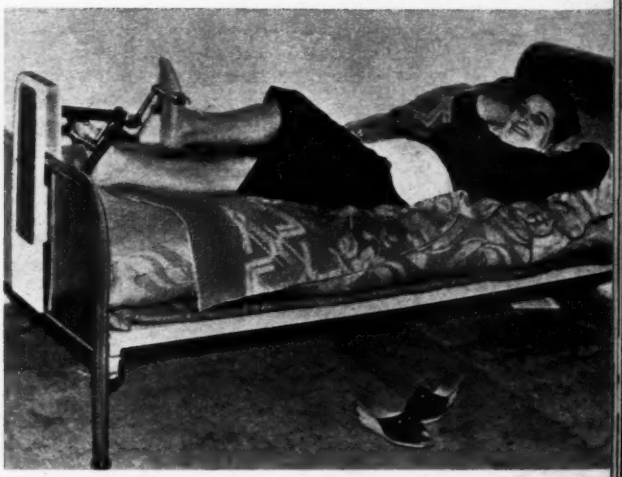
TENSION of each spring-controlled aluminum Jiffy-Up tent pole is adjusted by button. Fold-up poles are easy to tote, weigh only eight lbs.

SHRINKING BAZOOKA. Deadeye GI aims experimental lightweight anti-tank weapon at Aberdeen Proving Ground in Maryland. New tank-buster was one of many new weapons recently demonstrated by the U. S. Army.

RADIO BILLY has tiny transmitter with button in handle. It sends alarm signal to London police if user calls for aid.



NEW DRILL handle has marked compartments for seven drills. They drop into chuck, return to storage container through a hollow shaft.



BED PEDALING is now possible for the true bicycle-riding enthusiast. The German device fits over the bottom of the bed. The pedals fold up into unit when not in use. Now you can rise and shine—and pedal!

Skin-Diving for

BIG PIECE of jade on ocean floor at 50-foot depth weighed in at a hefty 230 pounds.

SKIN-DIVING in the rough and murky waters of Jade Cove along the Central California coast, Al Tillman has come up with a 500-pound chunk of jade. The director of the Los Angeles County skin-diving instruction program, Tillman finds jade at knee-depth and as far down as 50 feet. Jade brings $2 to $5 a pound but Tillman won't sell it. He gave the 500-pound piece to the Los Angeles County Museum. A 230-pound piece adorns his living room. •

NUGGET is wrestled into a rope cargo net devised by divers for trip to the surface.

DESERT water bags filled with compressed air from diver's tank brings up jade nugget.

Jade

DOUGHTY Land Rover ploughs up a storm while negotiating rocky stream bed in Bucks County, Pa.

the BRITISH LAND ROVER

Tom calls this extremely rugged utility wagon "A great vehicle."

By Tom McCahill

ERNEST HEMINGWAY, crashing through the brush of Kenya in hot pursuit of a ruptured lion, would undoubtedly do so in a four-wheel-drive Land Rover. For you neophytes who go in for your Afro-adventures by listening to Three-Lips Herman and his Bongos on the local jukebox, let me assure you that the Land Rover is an established character. Gregory Peck pulled a real *faux pas* in "The Macomber Affair" when, as a celluloid White

SQUARE-BUILT rig has an expensive aluminum alloy body. A 52-hp diesel engine is optional.

PLUCKY British buggy nearly flipped over backwards this time—but luckily it didn't.

COOL COWL for hot weather opens up under windshield, scoops air into cabin.

TROPIC ROOF on Land Rover at right makes a breezeway for additional cabin cooling.

Hunter, he used an American four-wheel-drive combat vehicle as the hunt's car—simply isn't done, old boy. Such plebeian trucks are used on the garbage detail and similar tasks but never for transporting the gunners in a grade one safari. That's a job for a British Land Rover.

The Land Rover is to the English what the Jeep is to us. It is basically a military vehicle, adapted during peacetime to dozens of chores impossible to accomplish with a standard automobile. There are attachments available to do every job from paint spraying to snow plowing but it doesn't float too well, a feature we'll go into in a minute.

The Land Rover comes in a number of body styles and two wheelbases. It offers two sizes of station wagons and many varieties of our standard pick-up truck with canvas or solid sides and roof. Incidentally, though we didn't run a test on it, the station wagon we had featured what is known as a "tropic roof." This is a second aluminum skin fastened about an inch and a half over the regular roof. This allows a free flow of shaded air to slide over the regular roof while you are under way; inside vents scoop this breezeway-treated air right into the cab. You'd have to try it to believe it but the effect is quite cooling. Though I told the company man when he seemed to become a bit overenthused, "Good as it is, it'll never replace air-conditioning" I will concede it's the next best thing. [*Continued on page* 154]

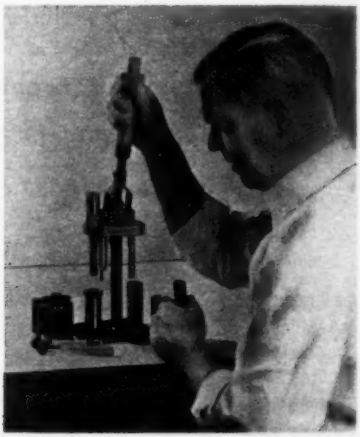
TEST CAR SPECS

MODEL TESTED: **British Land Rover four-wheel-drive station wagon**
ENGINE: **4** cyls; **139.5** cubic ins; **77** brake hp; **124** ft-lbs max torque; **7** to **1** compression ratio. Bore **3.56** ins; stroke **3.5** ins; Fuel required: **regular.** Standard axle ratio: **4.7.** Wheelbase **88** ins; length **142⅝** ins; height **77½** ins; width **64** ins; front tread **51½** ins; rear tread **51½** ins. Weight **2,871** lbs. Gas tank capacity **10** gals. Turning circle diameter **38** ft. Tire size **6.00 X 16.**
PRICE (without optionals): **$3,160**
PERFORMANCE: **0-30** mph, **6.9** secs; **0-50** mph, **18.3** secs. Top speed **70** mph. All times recorded on corrected speedometer.

Now See This!

VOLVO, the Swedish car maker whose products are attracting loyal followers in this country, is now planning to export a new sports coupe, shown above. Due to reach these shores in 1960, the new model will be a two-seater with two extra seats in the rear. It will be fitted with the Volvo sports engine and a four-speed gear box. Dimensions: height 51 ins.; width 67 ins.; length 173 ins.; wheelbase 96.5 ins.; tread 51.2 ins.

JET HYDROPLANE designed to break the 248.62-mph water speed record, held by Donald Campbell of Britain, is displayed here in a tabletop version. Ambitious skimmer is a cooperative effort of Guy Lombardo, Aluminum Company of America and designer Les Staudacher. Aluminum-clad craft is designed to hit top speed of 300 mph. Musical, metallic name: Tempo Alcoa.



SHOTSHELL reloading press priced at $35 by Lyman Gun Sight Corp., Middlefield, Conn., is said to produce 50 to 75 perfect reloads per hour. Called the Vandalia, the press comes with 12-, 16-, and 20-gauge dies, can also reload three-inch magnums. Only average skill is needed to operate it.

McCAHILL TESTS

THE TOYOPET

JAP MEETS JAP as the Toyopet snuggles up to a Zero, the famous Nip fighter of the '40s.

Uncle Tom reports this new Japanese beetle is a "pleasant car" to drive, offering plenty of quality features found in more costly imports.

By Tom McCahill

YOU'D have to sit up for at least a half-dozen nights with your friendly witch doctor to dream up a better saloon talking-piece than owning a Japanese car. A three-cylinder two-cycle Swede or a pancake rear-engined Kraut becomes as mundane as sand on a beach when faced with a product from the Land of the Rising Sun.

In the pre-World War II days, most Japanese products had the quality of a cotton-bottomed boat. They were usually considered just novelties and very little more. At the outbreak of war, much of our military brass was caught flat-footed by the quality the Sons of Nippon were working into their war machines. We were to discover they had optical and navigational instruments that we brainy blockbusters had never dreamed of. The Zero was one helluva plane to beat in a fight, as many of our boys learned the hard way. Since the war, Japan has pulled a phenomenal comeback, pumping out many excellent products including cameras and binoculars that are rated by some experts as the best in the world.

TOYOPET has "American look" styling and boasts nine coats of hand-rubbed lacquer.

COWL VENT drew Uncle Tom's approval. "It funnels big blob of fresh air to driver."

UNUSUAL window frame is unique Nipponese touch. Metal trim is almost pure chrome.

The Toyopet, Japan's first serious automotive entry in the world market, first hit these shores a little over a year ago and established a mild foothold on the West Coast. Indian scouts sent word back via wagontrain that these offerings created little initial excitement but might soon produce a few worries for the importers who were pumping thousands of European clamshells onto Atlantic coast docks almost daily. Toyopet is now well established, like the elm beetle in New York, Miami and other East Coast ports, so MI Editor Bill Parker decided it was time to find out whether the new Japanese Beetle was about to become an addition or subtraction to our way of life.

We picked up our test car, a ruby-red Crown Custom four-door sedan, in a warehouse in Newark, N. J., and drove it to Pennsylvania, where we were currently holed up. The opening impression you get from the Toyopet is, "Here's a car that *anyone* can drive." It has a three-speed steering column gearshift which is as American as the Liberty Bell, and a regular American-type reverse that you won't have to wind up into orbit and shoot for the moon to put it into gear. It has a key ignition starting switch in the best Detroit tradition and the pedals are ample. It has regular Detroit footroom, plus an added feature Detroit doesn't offer—enough legroom for King Kong if you want to push the front seat all the way back.

The Toyopet steers, feels and drives pretty much like a 1946-1950 Plymouth, or even a Chevrolet six of that era. Interior-wise, it has almost the same room as did those cars of the late '40s. The front seat is amply wide for two, and three can be inserted in a pinch. The back seat will hold three smallish people or two jumbo-size in full comfort.

[*Continued on next page*]

TEST CAR SPECS

MODEL TESTED: **Toyopet Crown Custom four-door sedan**

ENGINE: **4** cyls; **88.86** cubic ins; **65** brake hp; **83.6** ft-lbs max torque; **8** to **1** compression ratio. Bored **3.03** ins; stroke **3.07** ins; Fuel required: **Regular.** Standard axle ratio: **5.286.** Wheelbase **100** ins; length **172.4** ins; height **60.2** ins; width **66.8** ins; front tread **52.2** ins; rear tread **53.9** ins. Weight **2,688** lbs. Gas tank capacity **12** gals. Turning circle diameter **36** ft. Tire size **6.40 X 13.**

PRICE (without optionals): **$2,329**

PERFORMANCE: **0-30** mph, **6.7** secs; **0-60** mph, **24.7** secs; **40-60** mph, **15.0** secs. Top speed **75** mph. All times recorded on corrected speedometer.

TROUBLE LIGHT plugs in under hood or in glove compartment. It has ten-foot cord.

SAFETY LIGHT (arrow) on dash flashes a warning if any door is not firmly closed.

The thing that fascinated me the most about this car was its semi-rugged construction and, especially, the quality of the upholstery, which was $5,000-class stuff by our standards. My mind went back to the surprise we all got in the early days of WW II from Jap aircraft and I recalled that the Naval Air Station at Willow Grove, Pa., had several captured Zeroes on display there. During a test run, we decided to go down and look them over. In other words, I wanted to see what happened when Jap met Jap. So I introduced the Toyopet of 1960 to some of the bullet-specked Zeroes that had been the drag kings of the Pacific for many months during the early '40s.

As I've already indicated, Japanese products have a hard row to hoe in this country to overcome what amounts to generations of prejudice against them. When I saw that this Toyopet was loaded with quality, I found it very hard to believe. Strange, because I now own more than $3,000 worth of Japanese cameras and I believe, with many other professionals, that some of their lenses are the finest in the world. Hundreds of my pictures which have appeared in this magazine over the years were taken with German cameras. So it was somewhat to my amazement that I found myself not long ago paying out even more money for many pieces of equivalent Japanese equipment. In my opinion the best camera equipment of the past few years has been Japanese. So I shouldn't have been surprised when the Toyopet turned out to be loaded with goodies.

LOCKED GAS TANK, opened with ignition key, is filled via cap under tail light.

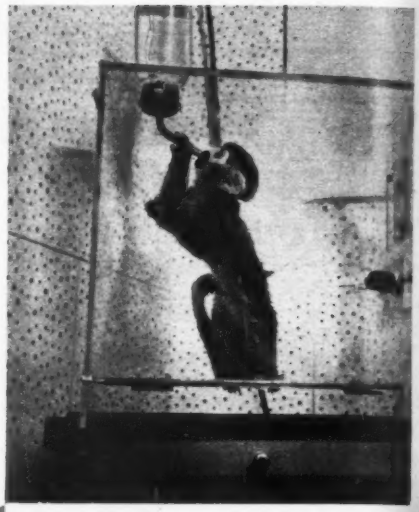
In some ways this is a strange car to drive. It seems extremely docile. It couldn't be the Drag King of *anything* but when you rev it up through the gears on a turnpike (where I tested it for a while) it has no trouble at all staying with the cars doing 65 and 70 mph. In fact, on one long stretch I passed dozens of cars [*Continued on page* 157]

Monkeys Shine
IN OUTER SPACE

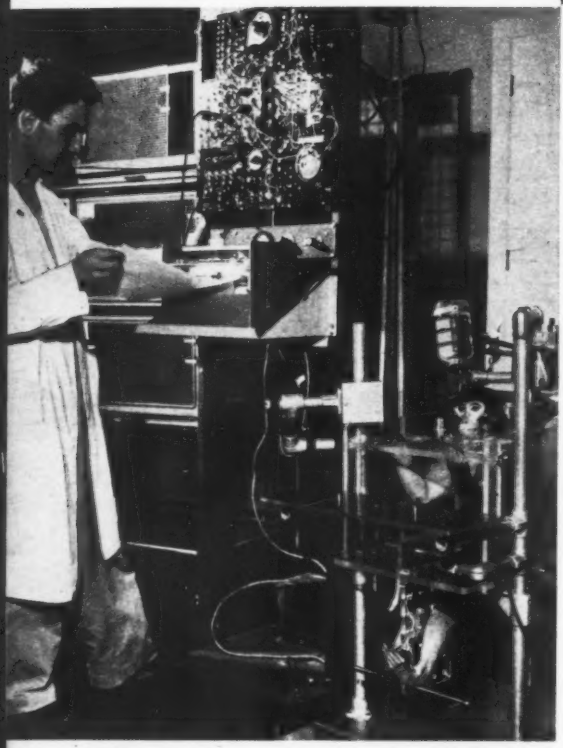
WHEN it comes to space exploration, there's no business like monkey business. The interest of Americans in space-going simians was aroused by the dramatic flight of Able and Baker, a rhesus monkey and a squirrel monkey, who were blasted 300 miles into space in the nose cone of a Jupiter missile and later recovered from the Atlantic Ocean, none the worse for wear. During their 1,500-mile jaunt, the astronauts traveled at speeds up to 10,000 mph and endured eight minutes of weightlessness. Needless to say, the monkeys didn't go along just for the ride. The purpose of the trip was three-fold: to test nose cone recovery procedure; to test the

MONKEY ABLE, above, perches on top of the chamber in which it took an historic 10,000-mph trip into space. At right, a test monk at Wright Air Development Center talks back sharply to its instructor.

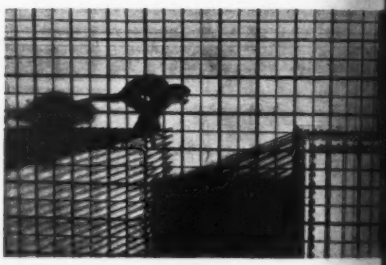
BY FLIPPING switch 50 times, this monkey learns he is rewarded with a food pellet.



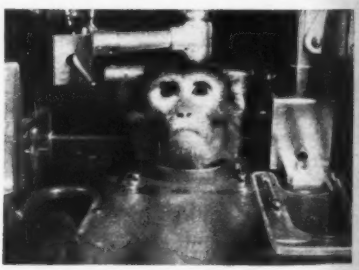
TEST MONKEYS learn to take water from tube similar to nose cone rig.



APPARATUS used to test simian's reactions is operated via radio when monkey is out in space.



BUZZER will make him jump from one stand to another or he gets a shock.



SOLEMN SAM, a test monkey, ponders the unique rigors of weightlessness.

behavior of Able, who had been taught to operate a switch similar to a telegraph key; to measure Baker's physiological reactions, such as heart stress, muscle response and pulse velocity.

The flight of Able and Baker (sad to say, Able died later during an operation to remove an electrode) was only the first in a series of space explorations involving monkeys.

How are monkeys prepared for their flights outside the earth's atmosphere? Most of the training of animals for space flight is taking place at the Wright Air Development Center's aero medical laboratory in Dayton, Ohio. Here, under the direction of Col. John Paul Stapp, monkeys, mice and other test animals are put through a rigorous training program designed to teach them to perform certain stunts on earth—stunts that later will be repeated, on signal, in the cramped confines of a nose cone.

For instance, monkeys like Able and Baker learn to jump when they hear a buzzer—or get a mild electric shock.

More complicated training involves viewing a pattern of circles and triangles on a screen and at the same time hearing a series of clicks and/or a steady tone. With one combination of sight and sound stimuli, the monkey must press a button to avoid a shock.

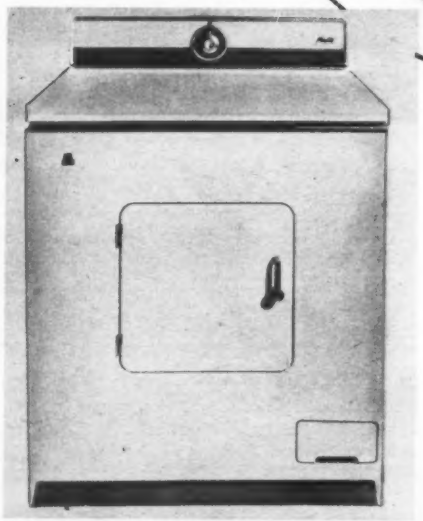
Monkey business? Sure—but necessary before we can put men into outer space—and bring them back alive. •

SPACE MONKEYS travel in this foam-lined couch fitted with electrodes to radio reactions.

Those Wonderful...

AUTOMATIC DRYERS

SPECIAL SERVICE SECTION



MAYTAG control panel is at right of timer. Model 741c, 31½ inches wide, sells for $300.

Gas and electric clothes dryers make housewives independent of weather.

By A. W. Bernsohn

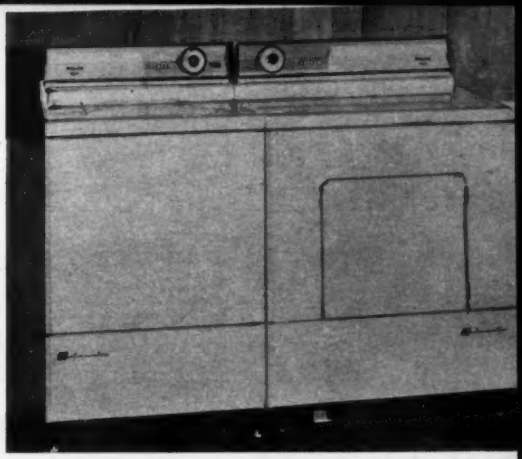
EVERY year automatic clothes dryers are being installed in more and more homes. At the start of 1959, they were being used in nearly eight million American homes.

An automatic clothes dryer performs three basic jobs: (1) it absorbs moisture by heating the air in the tumbler; (2) it circulates this air around the wet

clothes and carries it out along with lint; and (3) it tumbles clothes so that wrinkles are reduced or eliminated and nap is restored. However, today's dryers incorporate many additional features as well.

For example, tumbling mothballed blankets in a dryer is the simplest and fastest way to deodorize and sweeten them. And certainly the easiest way to dust drapes, pillows, rugs, curtains, etc., is to toss them into your dryer where they'll be tumbled and blown clean. When winter comes and the kiddies straggle in from school at lunchtime with sopping snowsuits, you can chuck their things in the dryer and send the youngsters back to classes dry as toast.

Most clothes dryers handle a 20-pound load and achieve a complete change of air every two seconds. They operate by drawing in outside air, heating it, then introducing it into the drying chamber where it picks up its load of moisture and is finally exhausted from the chamber. Some have sealed chambers in which the air is endlessly recirculated and the moisture condensed out of it. Lint is trapped in a screen or flushed down the drain after being run through the condensation chamber.



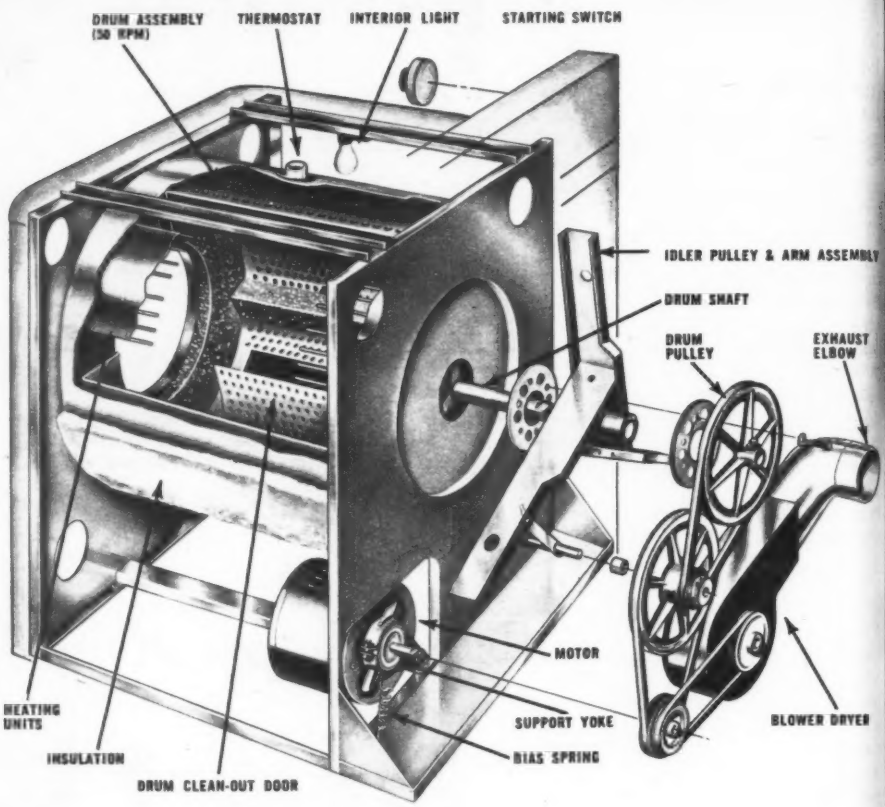
HOTPOINT, like most other manufacturers, offers matching automatic washer-dryer units. The model LC970 dryer alone is priced at $315.

PHILCO'S combination washer-dryer unit is compact enough to fit into a bathroom. Model C794 costs $460, is 26¾ inches wide.

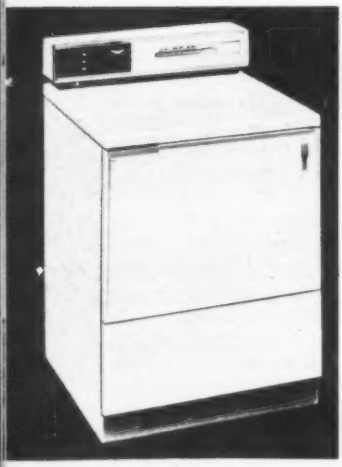
EASY'S washer-dryer unit has been aptly named the Combomatic. Lists at $550, is 27 inches wide.

The dryer's tumbling action is essential to most clothes drying and conditioning (the restoration of texture and appearance). Tumbling takes place in a drum of solid or perforated steel which lifts the clothes to the top by baffles, then lets them fall through warm, moving air.

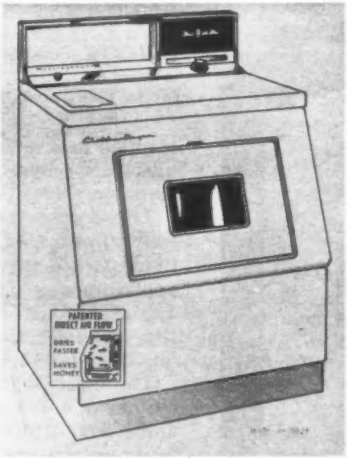
The most important improvements in clothes dryers since 1957 are the wash-and-wear settings. These were necessitated by the great revolution in fabrics that produced wash-and-wear clothes. The new settings, in addition to con-



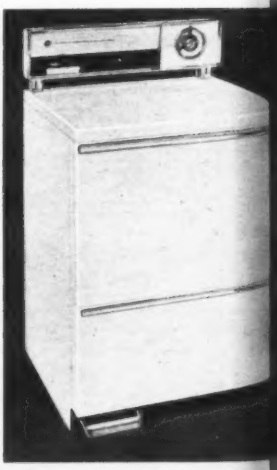
CUTAWAY DRAWING OF A TYPICAL AUTOMATIC DRYER



KELVINATOR washer-dryer has automatic lint filter, unit dries all fabrics. $270.



WESTINGHOUSE dryer features a fast-drying direct air flow; 29¾ inches wide. Price: $250.



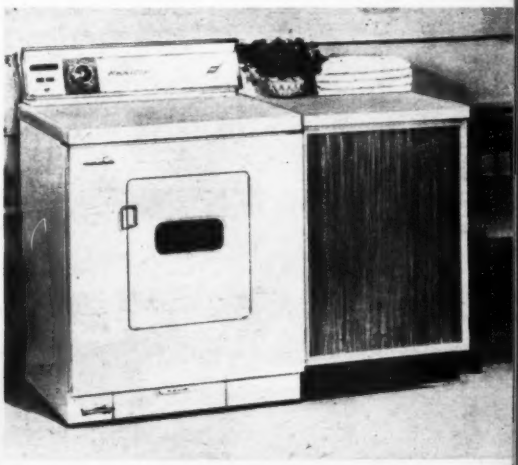
GENERAL ELECTRIC dryers are available in five colors. 27-inch-wide unit costs $290.

FRIGIDAIRE'S dryer sprinkles clothes for ironing, requires no outside venting. Custom Imperial model has a list price of $330.

SPEED QUEEN offers gas and electric dryers, guarantees tumbler drum for life. Model 133 gas unit, 30 inches wide: $330.

trolling temperature, also provide a short cool-off period of heatless tumbling which eliminates more wrinkles. Dryer manufacturers offering this feature include Easy, Frigidaire, General Electric, Hamilton, Hotpoint, Kelvinator, Maytag, Norge, Philco, Speed Queen, Westinghouse and Whirlpool. Most of these machines also have a device which, either by measuring the moisture in the drum or by means of a pre-selection time switch, determine when the clothes are dry and shut themselves [*Continued on page* 130]

NORGE demonstrates non-tumbling adjustment by drying matte prints in their dryers; circulates 165 cubic feet of air per minute.



HAMILTON dryers—first on the market—offer one of today's most modern appliances. Model 4A8, 31¼ inches wide, lists at $330.

OPEN-FACED KILN

Hobbyists will take extra pride in enameled creations wrought on a kiln of their own making.

REFRACTORY CEMENT, troweled on as shown, is used to secure firebricks to asbestos board.

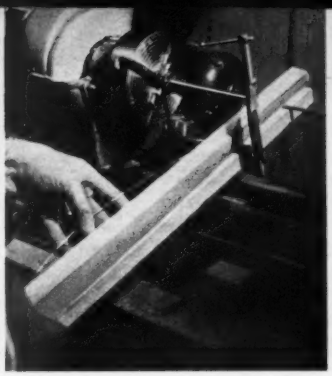
By Wilson Daugherty

ENAMELING is a fascinating hobby offering the widest range to the artistic talents of the creative craftsman.

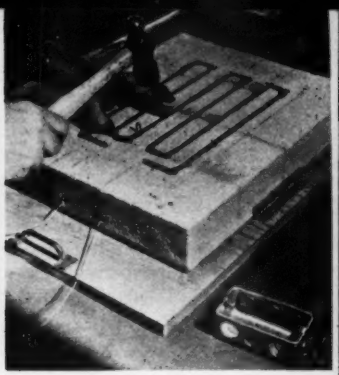
When a kiln is used to heat enamels (colored glass powders) on such metals as copper, they liquefy. In this state they can be swirled into any design by means of a pointed metal tool. Upon cooling, the enamels harden and adhere to the metal. Jewelry, ash-trays, knickknacks, even "paintings" on copper lend themselves to this process.

But first you'll need a kiln—the "hot plate" upon which the enamels are melted and worked.

LAYOUT for coil is drawn on face of firebricks with a soft pencil; use square as a guide.



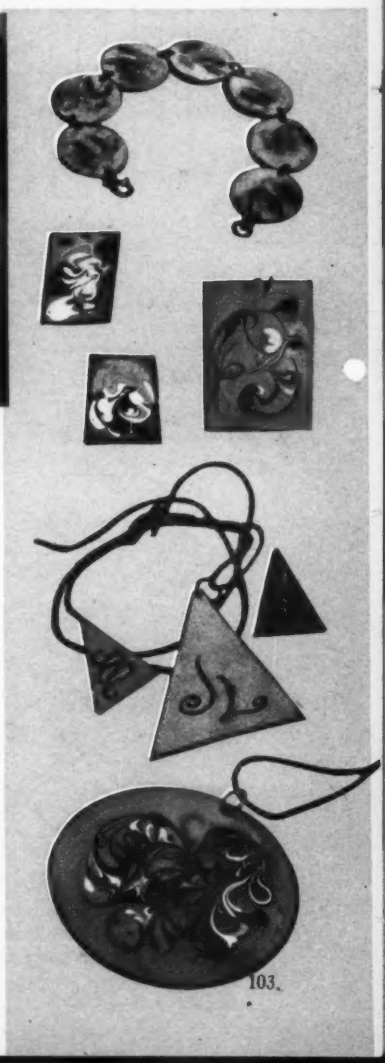
HEATING COIL is made by winding wire on steel rod held in chuck of slow-turning lathe.



HAIRPIN STAPLES are used to secure the coil in place in its grooves.

ALUNDUM CEMENT is troweled into coil and grooves and over the working face of the kiln.

REMOVE FORMS, then sand smooth the kiln's hardened Alundum pad.



Here's the way to make it:

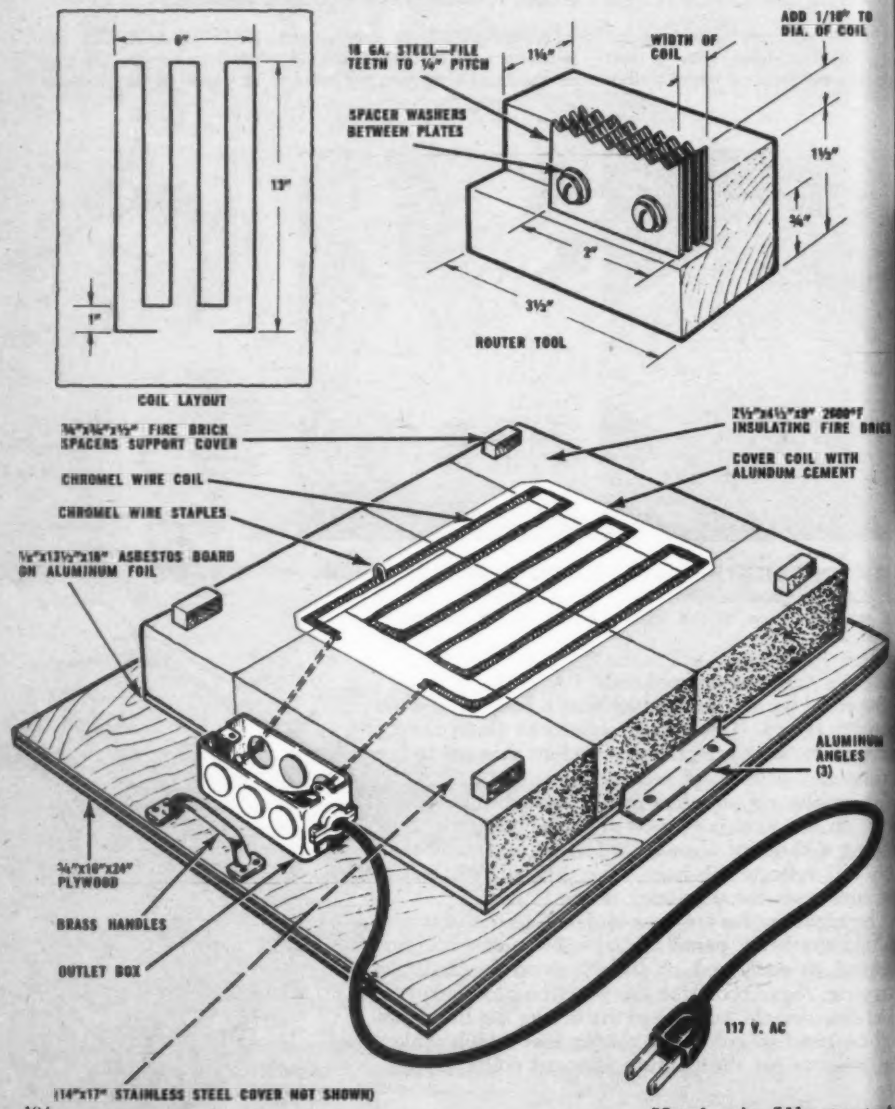
Start by laying the firebrick on a base of ⅛-inch asbestos board. Cement the bricks in place closely and evenly, with a refractory cement thinned to the consistency of mashed potatoes.

When the cement has dried the asbestos board is set on the ¾x16x24-inch plywood platform after placing a sheet of aluminum foil between the two. This foil reflects the heat back through the bricks and increases the efficiency of the unit.

The right angles are now fastened to the plywood to hold the brick panel in place. Window lifts are secured to each end of the plywood to facilitate carrying; leave room for the junction box however. Now draw on the surface of the bricks the lines that will be used to guide the router tool which makes the grooves for the heating element coil.

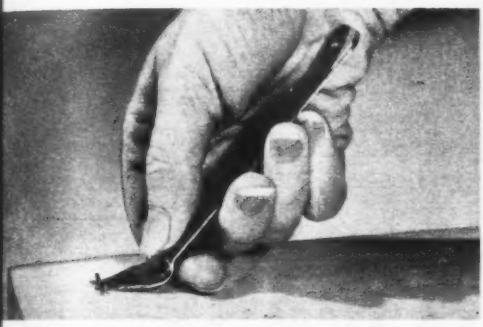
A kiln this size will use about 2,000 watts of electrical power which means, in this case, that about 40 feet of 14-gauge Chromel wire will be required. Measure off the wire leaving an extra two feet for the leads, for when the coil is wound a foot of straight wire should be left on each end for the electrical connections. The wire and a $\frac{3}{16}$-inch steel rod are now gripped in the four-jaw chuck of a lathe which slowly winds the wire on the rod. This winding can also be done manually by using a hand brace.

Now measure the outside diameter of the heating [*Continued on page* 132]

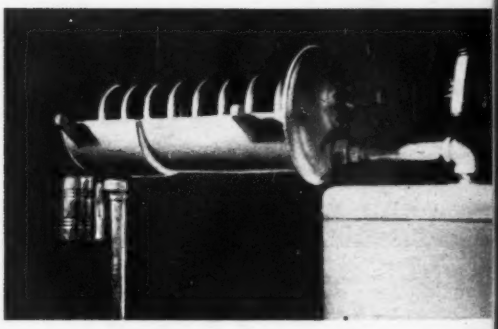


Hints For The Home Owner

BURN LEAVES as quickly as you can gather them by placing them in a cylinder made by interlocking the ends of a section of wire fencing. Well drafted, a large load will burn almost immediately.

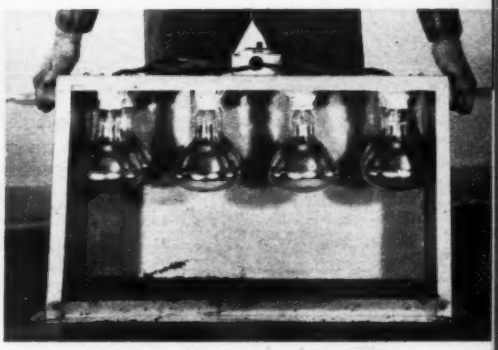


BEER CAN OPENER makes a handy tool for prying up staples; tip can be filed flatter and smooth bottom won't mar the wood.



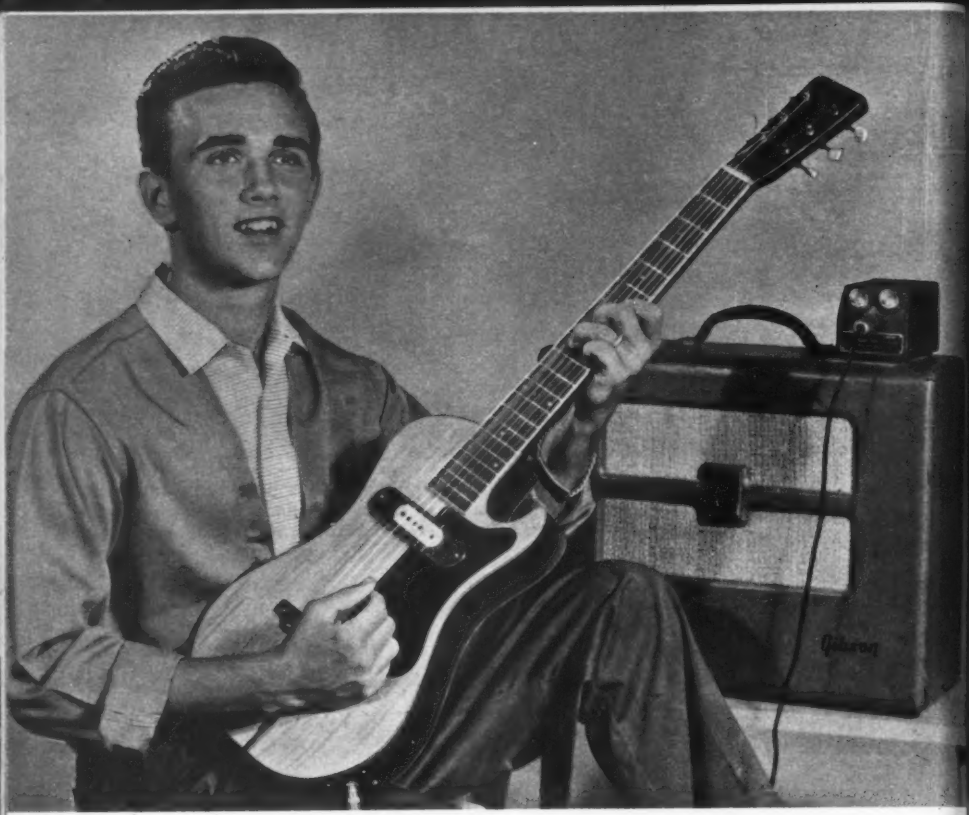
COPPER COIL with drip pan below is connected in cold water supply of automatic heater; tempers water, reduces fuel bill.

SNOW SHOVELING is made easier by pouring melted paraffin on shovel; it makes a smooth surface to which snow won't stick.



HOT BOX removes floor tiles by melting adhesive. Aluminum, it has eight 250-watt infra-red heat lamps, is safer than torch.

U. S. Army photo



HOW TO MAKE AN

Take your choice: Spanish or Hawaiian guitar either will richly reward your craftsmanship

By C. C. Beck

FEW musical instruments can be electrically amplified with more pleasing results than the guitar. With electronic amplification of its strings, an Hawaiian guitar can now consist of little more than a board to hold the strings and the pickup. However, it has been found impractical to reduce the body of the Spanish guitar to the same degree, as some body must be retained for balance, appearance and ease of holding.

Either instrument can be played through a phonograph, radio or TV set in case you do not wish to buy an amplifier. The pickup must be purchased, however, and should be of the magnetic, not the microphonic type.

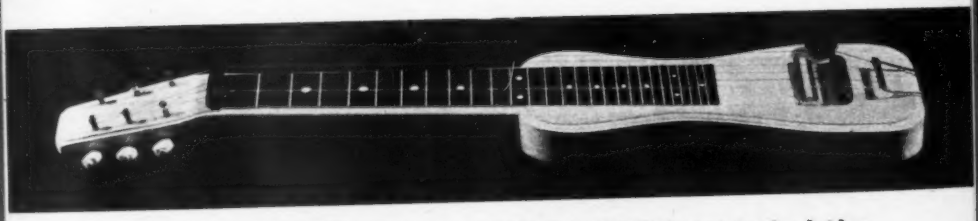
Should you wish to eliminate some of the hand work involved a list of parts with prices is given at the end of the article.

Step-by-step construction of both guitars is about the same and the following instructions—though they deal specifically with the Spanish guitar—can be followed generally for the Hawaiian guitar as well.

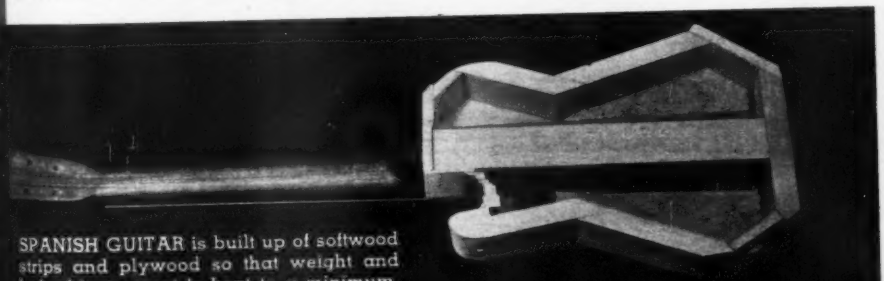
Begin by enlarging the neck pattern

POSITION OF BRIDGE and height of strings must be carefully checked for your guitar to perform properly.

ELECTRIC GUITAR

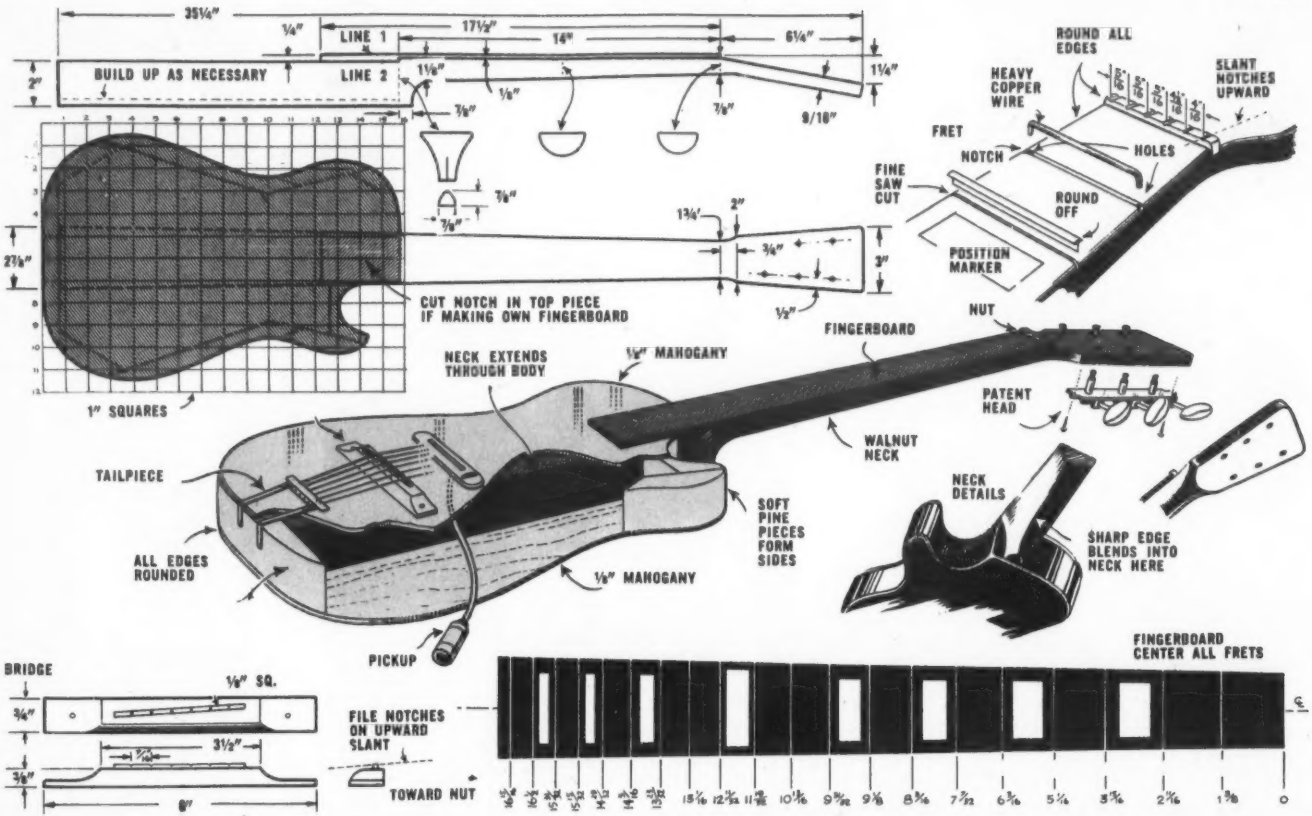


HAWAIIAN GUITAR has amplifier's volume control knob installed next to the bridge.

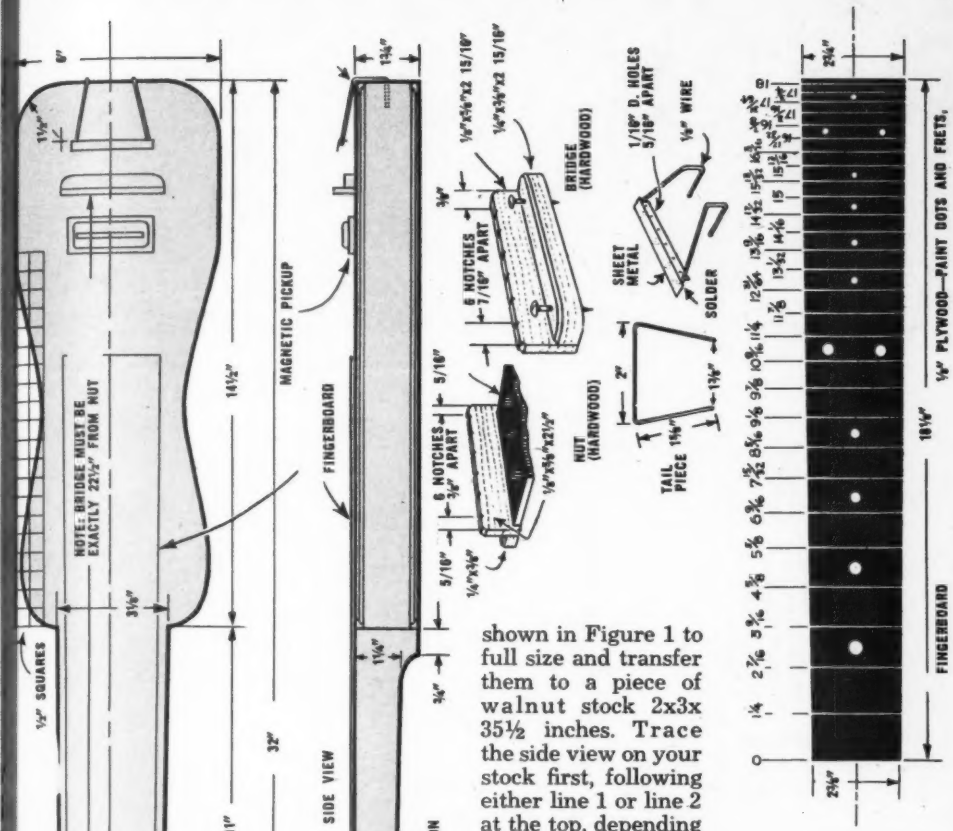


SPANISH GUITAR is built up of softwood strips and plywood so that weight and heft of instrument is kept to a minimum.

FIG. 1



SPANISH GUITAR can be yours for a few hours work. Necessary parts, exclusive of amplifying system, cost less than $10.



shown in Figure 1 to full size and transfer them to a piece of walnut stock 2x3x 35½ inches. Trace the side view on your stock first, following either line 1 or line 2 at the top, depending on whether you intend to build your own fingerboard or use a manufactured one. Band saw to within $\frac{1}{16}$ inch of the finish lines, then transfer the top view to your stock and saw to within $\frac{1}{16}$ inch of all lines.

With draw knife, rasp and small plane finish to the dimensions given. Carve the neck to the cross sections shown, round all edges and corners carefully, and sand smooth.

Bore the holes for the pegs as indicated making sure they are spaced to fit the spacing of the "patent head" which carries three pegs on one plate. Smooth everything with scraper and fine sandpaper except for the sections covered by the body.

Cut top and bottom body pieces from ⅛-inch mahogany plywood or thin fir, fret sawing to [*Continued on page* 135]

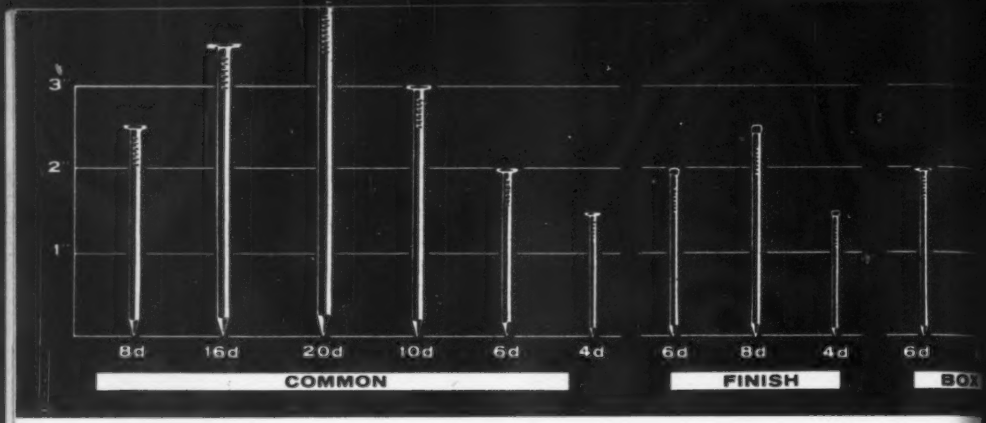
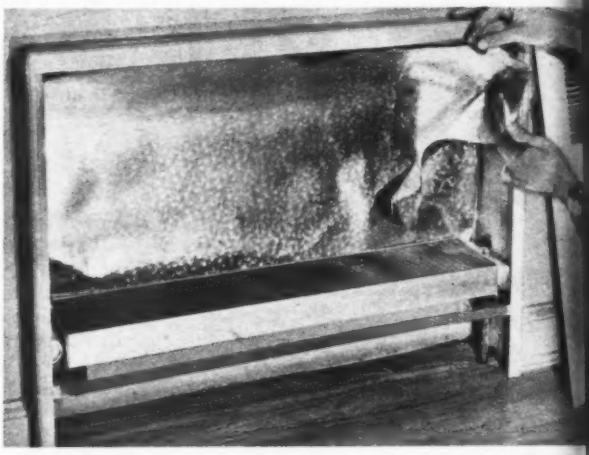


CHART showing names and sizes of nails of different pennyweight simplifies ordering.

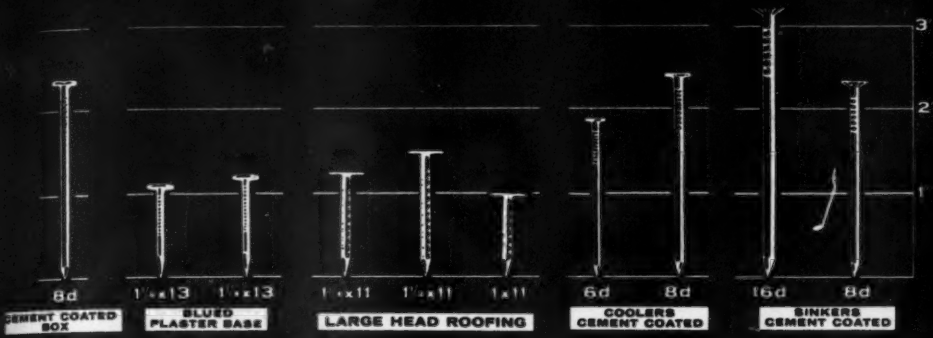
HOME And SHOP TIPS

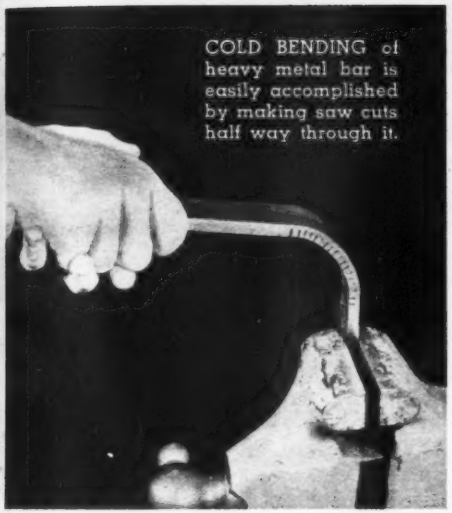


MORE HEAT is reflected into a room if area behind radiator on outside wall is lined with flexible aluminum foil.

FREDDIE FUMBLES

Courtesy American Steel and Wire Div. of United States Steel Corp.





Send Freddie Fumbles your idea of a good short-cut, time-saver or safety device in your work, whether it be in the home, shop, office or farm. Each tip accepted will be paid for at the rate of $10. Naturally we cannot acknowledge or return the ones we cannot use. However all will be carefully read and evaluated. (Those which we can use in other departments of MI will be paid for at our regular rates.) Please send in your ideas on a post card only. Address to Freddie Fumbles, *Mechanix Illustrated*, 67 W. 44th St., New York 36, N. Y.

How to get a
DRY CELLAR WORKSHOP

Make your basement a comfortable and healthy area for work and play by sealing it against dampness.

By N. Raskhodoff and D. Howe

BASEMENTS can be afflicted by three forms of excess moisture: *leakage, capillarity,* and *condensation.*

Leakage is evidenced by free water appearing on the inner surface of basement walls and floors. It is caused by the presence of free water outside the basement walls and under the floors which finds its way in through cracks or openings in the foundation.

Capillarity is recognized by damp spots that remain when evaporation of water at the interior surface of a wall fails to dissipate the water to the air. This occurs when absorbent wall material is in intimate contact with damp or

wet earth and the moisture is drawn through the wall by capillary action much the same as a blotter soaks up ink.

Condensation shows up in the form of wet spots on the interior surfaces of walls and floors at times when basement humidity is high and outdoor air temperature and relative humidity are also high. It is caused by moisture in the basement air condensing on the relatively cooler basement walls and floors.

The five major causes of dampness are improper drainage, poor masonry, improper or imperfect waterproofing, inadequate insulation and high humidity.

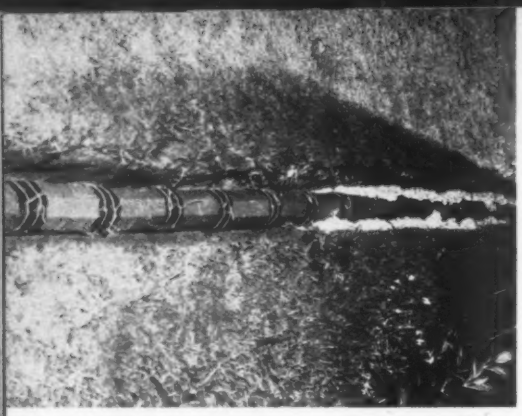
Naturally, the best time to take precautions against dampness is during construction. However, since this article is addressed to present home owners it

DRAIN TILE pipe is marketed in straight sections, in 45° and 90° elbows and in Y's.

DIG TRENCH parallel to chalk line. Slope it ¼ inch per foot for proper drainage.

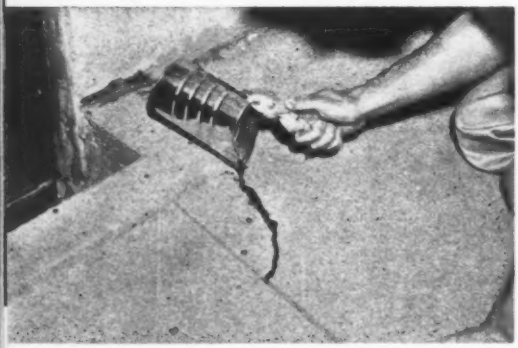
TEST SLOPE by sliding carpenter's level along straightedged board seated in trench.

SAND-FILLED tile section is cut by chipping along "cut line" with a cold chisel.

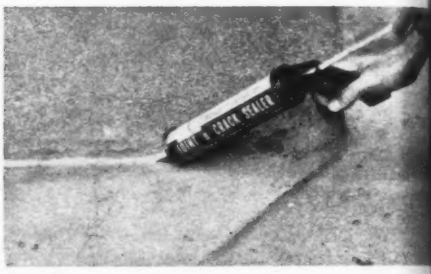


DRAIN LINE lies in dry well of gravel; wire mesh, tar paper cover joints as shown.

SILITEX cement paint is mixed with water to a creamy consistency with electric drill.



HOT TAR makes a good crack filler. Melt over a hot plate. Use pliers to hold can.



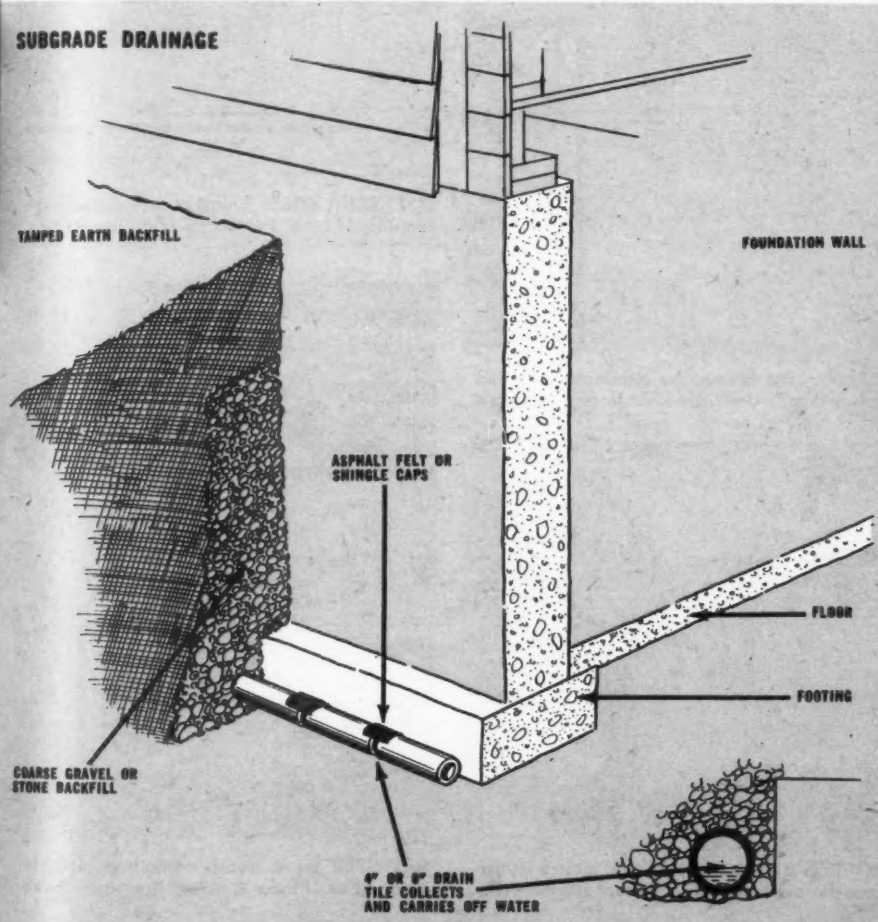
THIS JOINT AND CRACK FILLER comes in a tube. It is applied with a calking gun.

CLOSE-UP of silicone-treated masonry. The water is repelled and rolls off in drops.

TREATING EXTERIOR of shop wall with silicone. Use stiff brush and apply generously.

WET DOWN cellar wall thoroughly with a garden hose before applying the Silitex.

APPLY SILITEX with stiff brush; water spray after six hours; repeat for second coat.

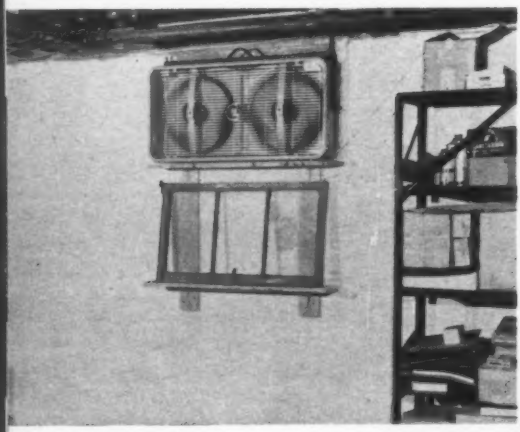


will treat exclusively of remedial action which can be taken to eliminate dampness in existing basements.

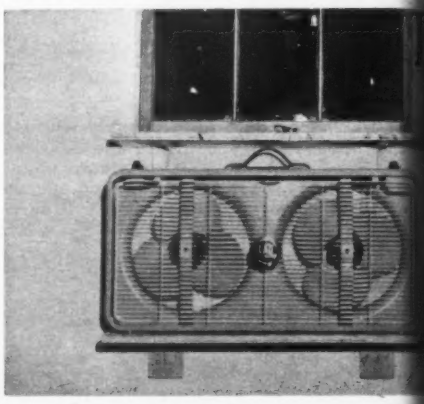
Improper drainage. Rain water splashing out of open downspouts into the earth can do worse than merely erode your lawn and wash away your cabbage patch; if left unchecked it will eventually seep through your basement walls and wreak *real* havoc. Don't waste any time in correcting this condition.

Lead all downspouts into a tile drain line which will dissipate most of the roof water underground and away from the house.

There are two types of drain tile. The plain or unglazed type was used for the drain line described here. The other tile

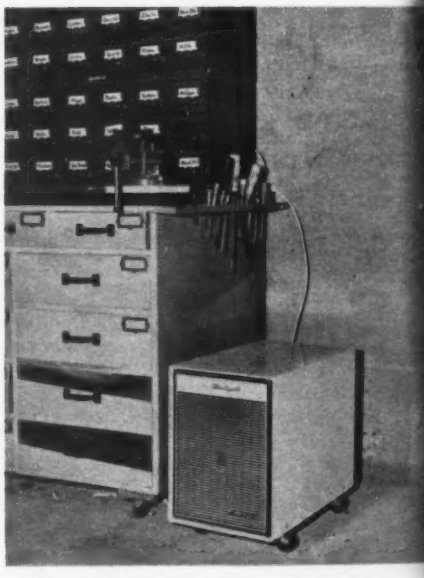


DAMP cellar air can be eliminated with an exhaust fan. Use when air is dry outdoors.



AN EXTRA SHELF below window stores the double 12-inch fan when it is not in use.

BORDEN'S (the milk company) makes Hydrocure for sealing wet basement floors, walls.



BIG HELP for a damp workshop is a dehumidifier. Place it near the workbench.

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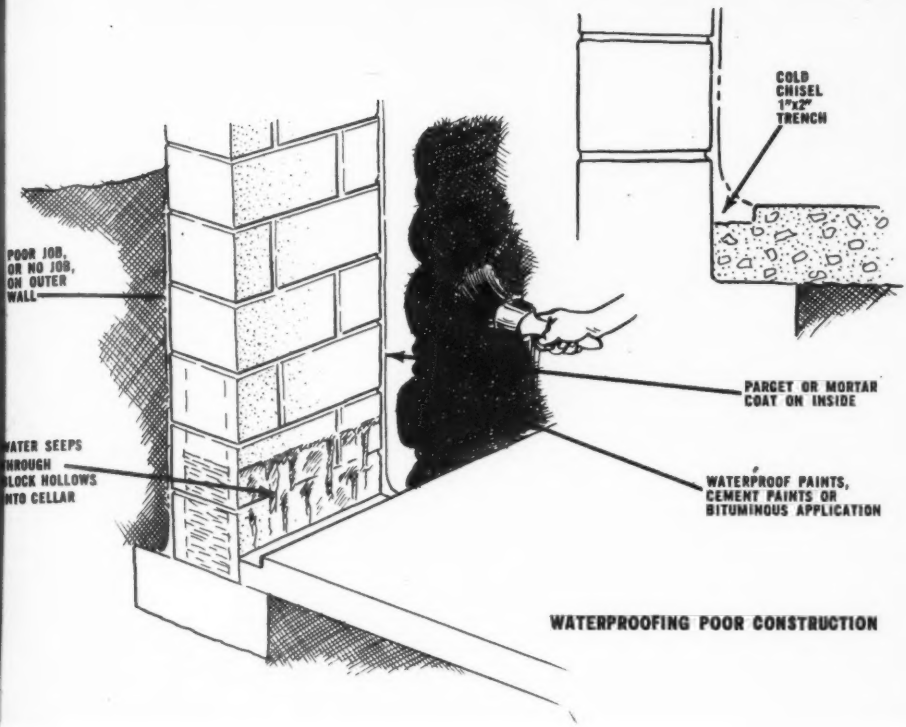
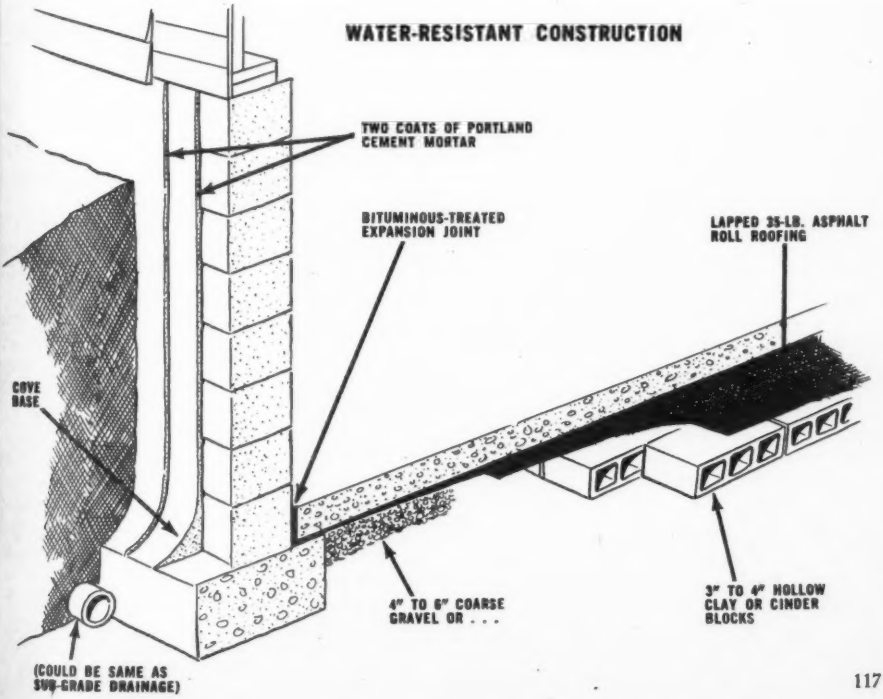
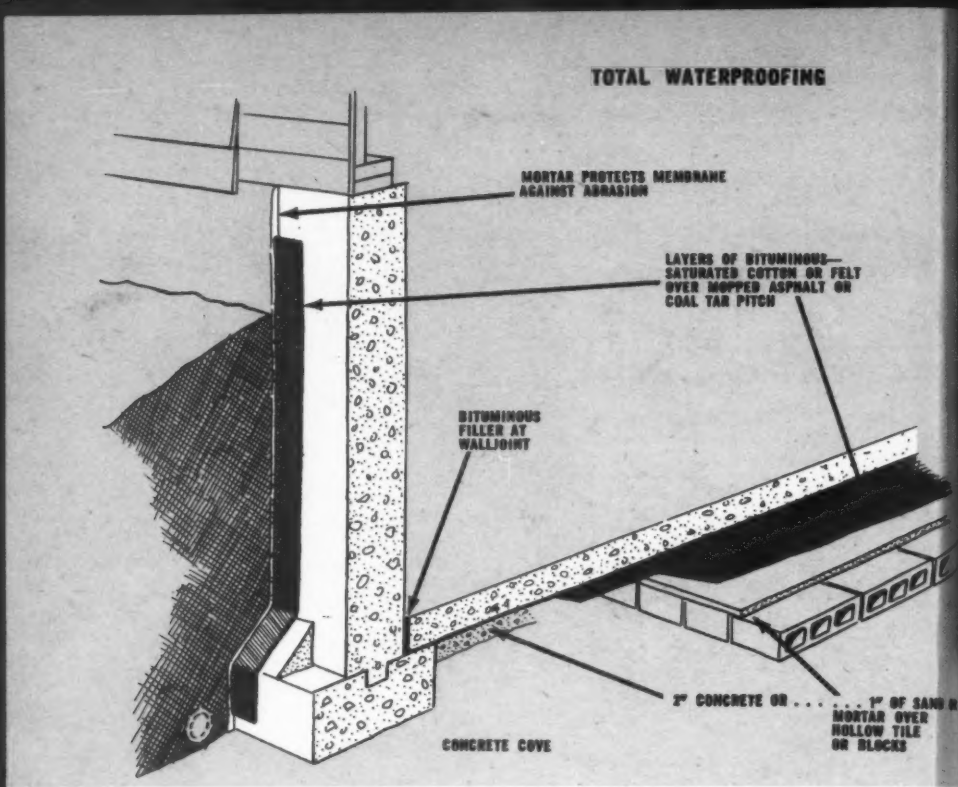


WATERPROOFING POOR CONSTRUCTION

WATER-RESISTANT CONSTRUCTION





—the glazed or "bell" type—is for installations requiring sealed joints. Unglazed tile comes in one-foot lengths, glazed tile in two-foot lengths. It is measured and identified by its inner diameter—in this case four inches, which is ample to handle drainage from several downspouts.

Select as a terminating drainage point a low spot in the back yard or driveway. The slope of the drain line should drop at least a quarter inch per foot to provide adequate drainage during a heavy rainfall.

The drain line trench is dug along a level chalk line stretched between downspout and termination point. The trench should be about 10 to 12 inches wide. Its depth, at the beginning, will be determined by the 90° tile ell joined to the downspout.

You can use a long 2x4 as a straightedge and set a carpenter's level on top of it to check the slope of the trench while digging. The 2x4 will also locate any high spots in the bottom of the trench.

Check the trench slope by setting the 2x4 in the trench, then driving stakes at each end of the 2x4 so that their tops are flush with the top of this straightedge when it is horizontal. If a 10-foot 2x4 is used, make a mark on the lower stake 2½ inches below the chalk line to fix the spot opposite where the top of the board should be when the trench is properly sloped.

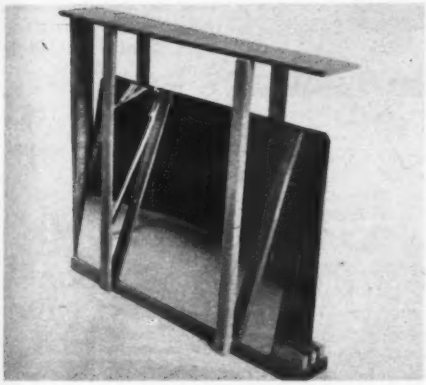
Join the tile sections with No. 14 galvanized wire wrapped around heavy roofing paper cut into six-inch-wide strips which will circle about three-quarters of each tile end.

Several branch drain lines can be connected into a main line by using 45° and 90° Y's.

Once the tile is in place the trench should be filled to the top of the tile with gravel before tamping in the earth backfill to level it off. The gravel acts as an elongated dry well and absorbs most of the drain water. [*Continued on page 152*]

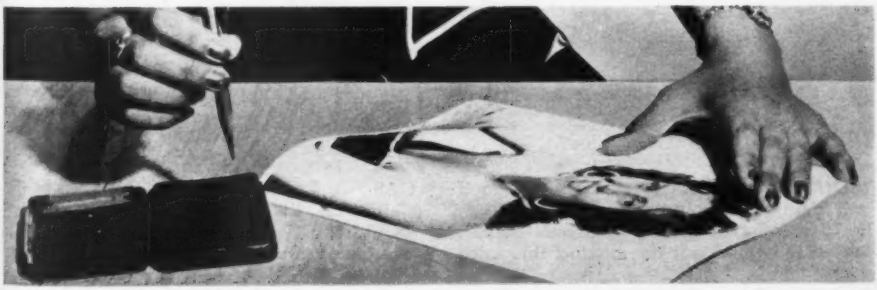
PHOTO HANDIES

REFLECTOR secured with a wing nut to the pan-tilt head of a tripod enables photographer to illuminate shadows in sunlighted pictures without aid of an assistant.



RACK protects ferrotype plates. Build as shown and mount under darkroom bench.

DOUBLE-FACED adhesive flattens picture on copy board, eliminates thumbtack holes.



SPOT PRINTS with a sharp pencil dipped in stamp-pad ink. Ink adheres, dries quickly.

Golden Hammer Award Winners

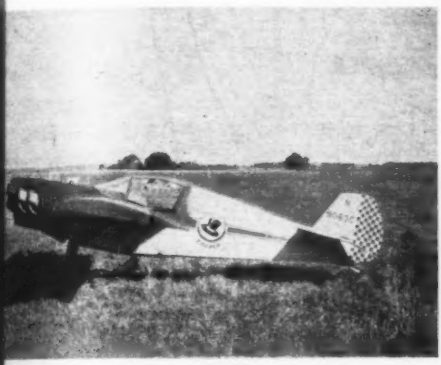
REBUILT living room wall features mahogany plywood paneling and recessed shelves and bookcases. Renovating job was done by John Simon of Leechburg, Pa., who worked on it during weekends.

"SERAPH," a 24-foot sloop, was designed and built by Anton Klein of Napa, Calif., in 15 months at a cost of $2,000. Myrtle, his wife, helped out by making the sails.

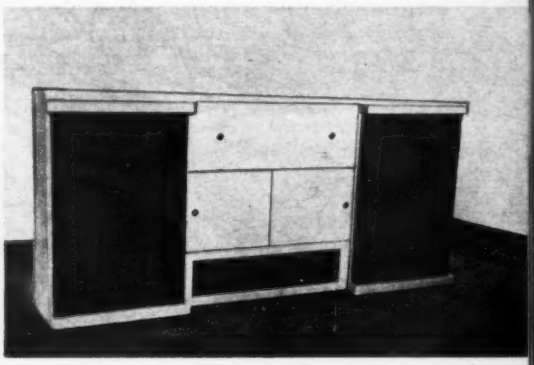
CAR-TOP CAMPER by Frank Hermes, Jr., of Chillicothe, Ill., was built on a 4x8-foot plywood base, erects in five minutes by means of conduit frames; note ladder entrance.

MAHOGANY DESK boasting a built-in bookcase (not visible) on the front side is an ideal room divider as well. It was styled and crafted by Richard Brown of Aplington, Ia.

HOUSE measuring 28x32 feet was built by Lucien Caron of Nashua, N. H. The vertical redwood siding of the first floor contrasts smartly with the upstairs shingle siding.



SPORT PLANE, planned and built in one year by Mert Taylor, Whitewater, Wis., is 16 feet long with a 15½-foot wingspan. Cruising speed is 130 mph; top speed, 150.



RECORD PLAYER is a 30-watt stereophonic AM and FM unit measuring 74x36x16 inches. Henry Sroczynski, Webster, Mass., completed this six-speaker ensemble in 33 hours.

Each craftsman whose project is shown receives a 24-karat gold-plated Hammer and a Workbench Award Certificate. Runners-up will be sent a beautiful gold-plated Golden Hammer Tie Bar or MI's Certificate of Merit. So send us some *black-and-white photos, with negatives*, and a full description of your latest project. Photos of your workshop are also eligible. Send all entries, with return postage, to MECHANIX ILLUSTRATED Golden Hammer Awards, 67 West 44th St., New York 36, N. Y. Entrants are advised that MECHANIX ILLUSTRATED cannot accept responsibility for customs charges, duties, taxes, etc., levied against Golden Hammer and Golden Hammer Tie Bar winners outside the United States.

The following craftsmen have been awarded GOLDEN HAMMER TIE BARS for their projects: Wayne Watkins, B. C., Can.; Charles M. Hunt, Houston, Tex.; Albert Bator, Sunnyside, Wash.; Rex Baxter, Tuscola, Mich.; Guthrie Meade, Columbus, Ga.; William H. Wedo, Phillipsburg, N. J.; Ralph Zabel, Fond du Lac, Wis.; Kim J. Gougrud, Menomonie, Wis.; Carl A. Tyhurst, Pittsburgh, Pa.; S. L. Maddox, Athens, Ga.; Mark Bauer, Garden City, N. Y.; Edward Kirkpatrick, Marion, N. C.; W. V. Holden, Ont., Can.; Jose F. Lebron, Santruce, P. R.; Larry Waldo, Adams, Wis.; Richard M. Jacobs, Phila, Pa.; Mayne Erie, Jr., Allentown, Pa.; Robert F. Walters, Tonowanda, N. Y.; Norbert T. Okoniewski, Utica, Mich.; Bill Park, Kingston, Ga.; Alan Dizney, Corbin, Ky.; Charles J. Pinkepank, Menomonie, Wis.; G. Hille, Ont., Can.; George [Continued on page 148]

BLASÉ BENNY can kiss his favorite index digit au revoir. Quoth our nine-fingered novice: "Hey, fellas, use a pusher stick for these jobs . . . and watch what you're doing!"

CRAFTSMAN OR CASUALTY?

Harken ye to the sound advice of safe shopsmanship expounded here (and live a longer craftsman's life).

By M. Robert Beasley

MOST home shop accidents happen either to amateurs who don't take time to learn safety precautions or to seasoned craftsmen who carelessly ignore ordinary rules of safety. At any rate, it's important that all of us review occasionally some of the pitfalls that await the greenhorn and the overconfident shopster, as well as the rest of us (and best of us) to whom lapses of safe operating techniques may be less common but no less dangerous.

Ladders. Although ladders have become standard household equipment, more than 13,000 people are killed annually by falls from them! Practically without exception, these accidents are the result of carelessness!

SIR KNOCKSELOT wouldn't have to don his knightly armor if he'd grind down that big mushroomed head on the end of his chisel.

Never paint a ladder. Coat it instead with clear lacquer, varnish, linseed oil or other transparent preservatives which don't hide defects. Always examine a ladder before each use for loose or cracked steps or rungs, loose assembly parts and slivers. When a ladder shows signs of deterioration it should be replaced.

Use both hands when climbing or descending a ladder. Unless tools can be carried conveniently in coverall pockets, use a line to haul them up and lower them.

Special care should be taken when handling unwieldy objects such as storm windows while balanced on a ladder. A strong gust of wind can catch such objects and flip you to the ground.

The proper angle at which a straight ladder should lean against a wall is with its base one-fourth the height of the ladder away from the wall. If further from the wall, the possibility of it slipping or breaking under your weight is increased; if too close, there is the danger of your tipping over backwards. And never climb higher than the third rung from the top.

LENNY LIVEWIRE ignored the third wire on that portable power drill. Yep, he'll ground it—as soon as he stops vibrating.

MUSCLES MUGSBEE will be walking on all fours if he doesn't get the message about lifting with the legs, not the sacroiliac.

SAM SHOCKWELL couldn't wait to climb up that wet (or metal) ladder lying against his power line. He's waiting now—in bed.

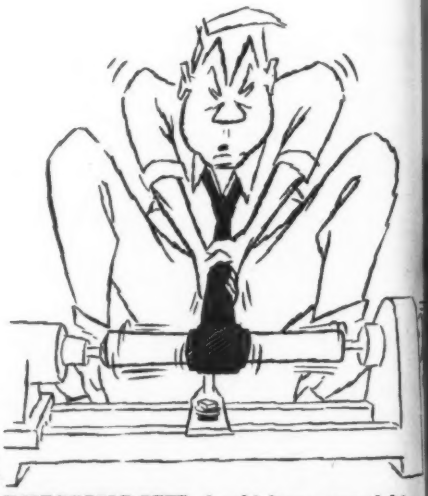
NOXIOUS NED scorned fresh air, preferred to paint in a closed room—was last seen reading get-well cards in an oxygen tent.

A ladder should always rest on a stable nonskid surface. On smooth hard surfaces you must anchor the foot of the ladder with ropes.

Metal or wet wooden ladders are conductors of electricity and should never be used close to electrical circuits or lead-in wires.

Power tools. Obtain peak efficiency and maximum safety from power tools by reading, and heeding, the literature supplied with [*Continued on page* 149]

HANDY HANS said he'd take all the tools up in one trip . . . which is why his brother had cause to remark, "Look, Ma, no Hans."



IMPECCABLE PETE should have saved his cravat for the Elks' dance. He's sure fit to be tied now—with that cast on his neck.

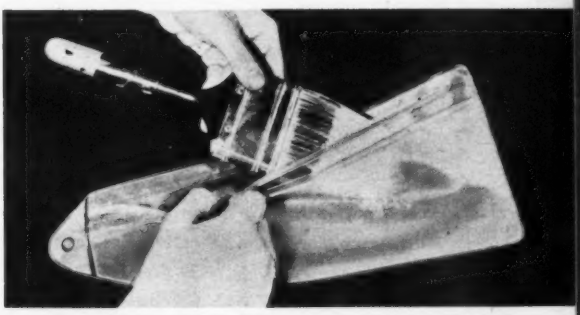
FRESH PAINT TIPS

KWIK paint and varnish remover softens and "blisters" paint which is then wiped and rinsed away; works on all woods, veneers and metals.

Chemical Products Co., Inc., Aberdeen, Md.

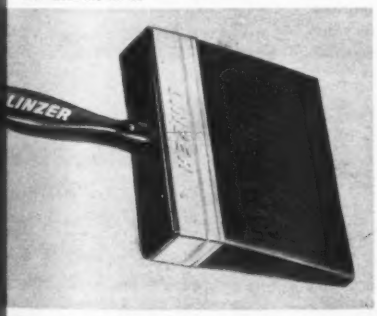
ACOUSTEX soundproofing paint reduces noise, brushes on fast, dries in three hours, covers all surfaces.

Acoustic Chemical Corp., 51 E. 42 St., New York 17, N. Y.



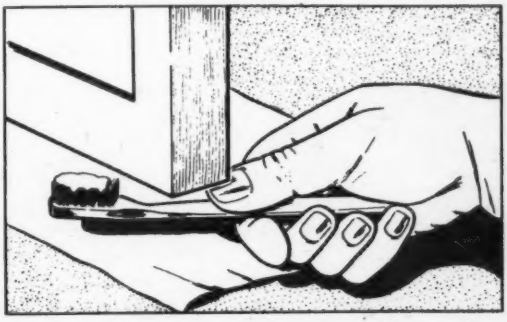
STO-AWAY plastic bags have press-to-lock closure for storing wet paint brushes between day-to-day paint jobs. Size shown is 69 cents.

Richards Co., 10 Ormond Place, Rye, N. Y.



NYLON BRUSH features individually tapered filaments, provides unusual control, accuracy. Three-inch, $5.00.

Linzer & Sons, Inc., 10 Astor Pl., New York 13, N. Y.



PERFECTIONIST PAINTERS can paint their door bottoms using a toothbrush as shown. Slip a mirror under the door to check for "holidays."

Now... a camera built to

THE KODAK SIGNET 80

Whether you work in wood, metal, or plastic . . . skin-dive or study the stars . . . specialize in sports cars or specimen roses . . . aircraft models or model rail layouts . . . electronic experiments or action photography . . . *this Kodak Signet 80 Camera should be your teammate and companion.*

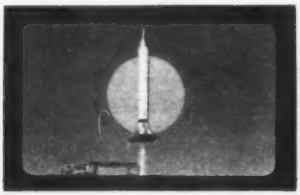
It has a part to play . . . making your hobby better—more rewarding.

Precision camera? Yes. Expert's camera? Yes—but you don't have to be an expert to operate it. Kodak, in the American tradition, has created a camera with all the features the experts demand—but easy-to-use in every feature.

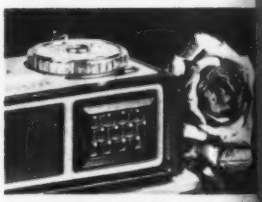
See the superb new Kodak Signet 80 Camera at your photo dealer's. Examine the interchangeable lenses. Test the photoelectric meter, the "natural-size" finder, unique new "injection" loading, the connectors for both flashbulbs *and* electronic flash. It's *the* camera to team up with your hobby. Yours for only $129.50, with 50mm *f*/2.8 lens—or as little as $12.95 down.

Here are a few ways the Signet 80 Camera can make any hobby richer, more rewarding...

You get needle-sharp pictures with the coupled rangefinder—2½ feet to infinity! Couples to all lenses.



You shoot exactly what you see, with the brilliant big-as-life viewfinder. Image is life-size!



You read exposure easily—w ultra-sensitive photoelectr meter! Sets for all films.

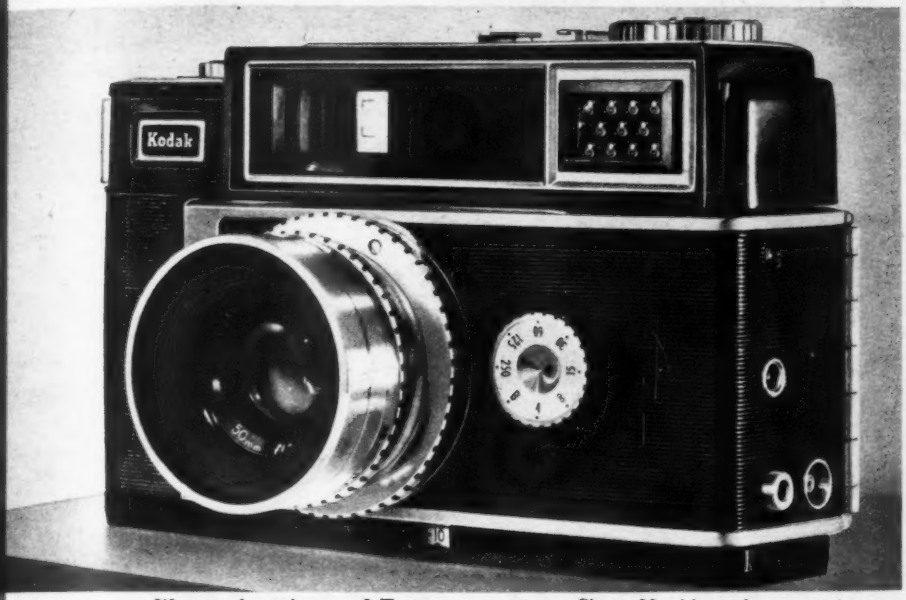
You change lenses instantly—switch to wide-angle or telephoto. Just drop in, start shooting!

You pull in faraway scenes, take candid portraits with the telephoto lens. (90mm *f*/4, $69.50)

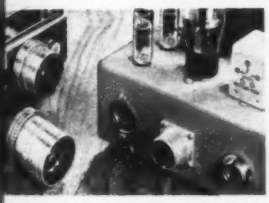
You capture the broad sweep o scene with the wide-angle le (35mm *f*/3.5, $57.50)

EASTMAN KODAK COMPANY

team up with your hobby...



Want to shoot the moon? To team up your new Signet 80 with a telescope, write our Sales Service Division for "Astrophotography With Your Camera," Pamphlet C-20.



Near or far, you capture extra detail with Signet 80 rare-element-glass lenses. Superb for color.

You load film fast—drop it in, close the camera. You can do it with one hand, blindfold!

You can make ultra-close-ups of specimens with low-cost Kodak Portra Lenses. Quick, easy.

Multi-Frame Finder tells instantly which lens fits the scene best. ($17.50)

You click off rapid-sequence shots with thumb-action film advance. Sets shutter too, counts shots.

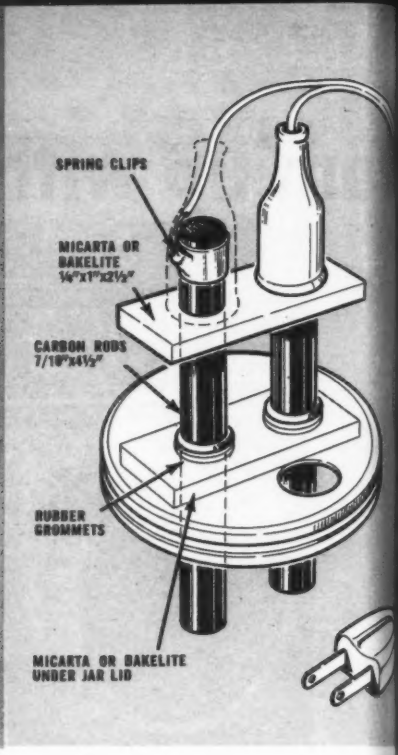
See Kodak's "The Ed Sullivan Show" and "The Adventures of Ozzie and Harriet"

(Prices are list, include Federal Tax, are subject to change without notice)

Kodak
TRADEMARK

Rochester 4, N.Y.

FULLY ASSEMBLED vaporizer. On-off switch may be inserted in line.



ELECTRIC VAPORIZER

When colds, asthma or other respiratory ailments make breathing difficult, bring on this simple vaporizer for effective relief

By Robert L. Bastress

CLAMP lid and Micarta strips together to drill all the holes in perfect alignment.

AN effective way to get temporary relief for a stopped-up nose is to use a vaporizer. This one is easily made and works fine when eight or ten drops of eucalyptus or camphorated oil are added to water in the jar. The principle is simple: The carbon electrodes heat the water to a boil and the vapor rises through holes in the lid. When the water boils down below the electrodes, the circuit is broken and the action is automatically stopped. In use, the jar should not be filled more than three-quarters full.

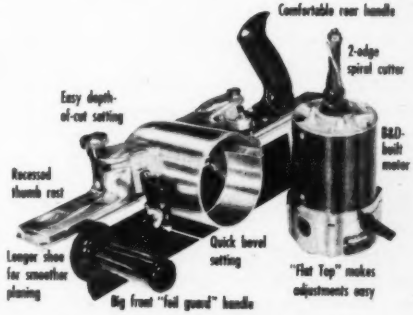
The carbon rods are the type used in theatre projectors or theatrical spotlights. Engrav-[*Continued on page* 152]

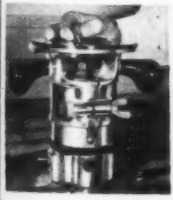
NEW BLACK & DECKER ROUTER-PLANE GIVES YOU COMPLETE CONTROL IN THE WOOD!

It's a ¾ HP Router and a Power Plane combined!

As a plane it gives you perfect balance, fast and accurate cutting, easy-to-use depth and bevel adjustments. Notice how that extra-length front shoe gives you greater accuracy in starting cuts. Notice how the motor is balanced midway between the hands for level operation. Notice how the longer front handle and thumb rest put you in control of the job at all times. Quickly adapted to ¾ HP Router. (*See below*).

The powerful B&D-built Router motor handles continuous-duty operations on the toughest routing and planing jobs. Complete Kit includes router motor, plane attachment and router base in sturdy metal carrying case. Ask your B&D dealer about it.





BLACK & DECKER ¾ HP HEAVY-DUTY ROUTER

One of the lightest, most compact routers on the market! The simplest micrometer depth adjustment, specially-designed handles, exclusive "flat top" and other features make the B&D Router the builders' best buy!

Black & Decker®

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Look Under "POWER-ELECTRIC" in Yellow Pages

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☐ Please send complete descriptive literature on new B&D Router-Plane
☐ Enclosed find 50c for B&D Router Manual

Name.....

Address.....

City.....Zone....State.....

[*Continued from page* 101]

off automatically. They also offer an optional tumble-dry setting which provides air but not heat for freshening things that simply need dusting and fluffing. Most dryers have a safety door that stops tumbling action whenever the door is opened; others have start buttons so situated as to be out of reach of small children.

Tilt-down doors which open from the top of the dryer port and prevent clothes from accidentally dropping to the floor are features of Blackstone, Norge and Westinghouse dryers. A device for sprinkling the clothes in the dryer before ironing is incorporated into Frigidaire, General Electric and Maytag dryers. Easy, GE and Hotpoint have air fresheners that scent clothes with a pleasing odor as they're tumble-dried. Six other makes offer ozone lamps that give a fresh-air scent to clothes. These are Frigidaire, Hamilton, Maytag, Norge, Speed Queen and Whirlpool. An unusual feature of Maytag machines is that they filter air entering the dryer—an important asset in areas where smoke or smog prevail.

Drying time. Most dryers are available in a choice of 115 or 230 volts. Tests have shown that electric dryers operating on 230 volts and most gas units can dry a load of clothes in 25 to 50 minutes; but it took between 80 and 120 minutes to do loads in electric dryers operating on 115 volts when set at High, and some dryers aren't timer-equipped for this length of time, although Maytag and Kelvinator—among others—are.

Which type—gas or electric? Both gas and electric dryers are pretty much on a par. Local prices and availability of utilities will determine which type dryer is best suited for you. Electric dryers are usually a little less expensive initially and they sometimes have a wider range of temperatures and controls. A machine wired into a 230-volt line will dry clothes in about 30 minutes. Advantages of gas are that operational costs are lower and gas dryers, of course, obviate the need for additional wiring in 115-volt homes. Neither type requires more servicing than the other.

Dryer prices generally range between $200 and $300. Occasionally you will see a promotional model advertised for around $150. Gas dryers with glow coils energized through low-voltage transformers usually cost around $30 more than those using pilot lights. Top manufacturers' lines list at around $330.

Amount of space and available locations are important considerations when selecting your dryer. Wherever possible the machine should be located next to the washer and also near a basement window or other location where venting can be handled easily. Practically all dryers stand 36 inches high, so the determining dimension will be width.

Installation. In the case of gas dryers, installation of gas lines should be done by a qualified plumber. A label at the rear of gas dryers specifies the type gas the dryer is equipped to burn. While gas dryers are easily converted from one type of gas to another, the man installing it will have to check with the local gas company for the BTU (British Thermal Unit) rating per cubic foot and pressure of the local supply to know what size main burner orifice to use on your machine. When converted from LP (liquid propane) gas they must incorporate a pressure regulator; dryers converted *to* LP gas must have the pressure regulator removed.

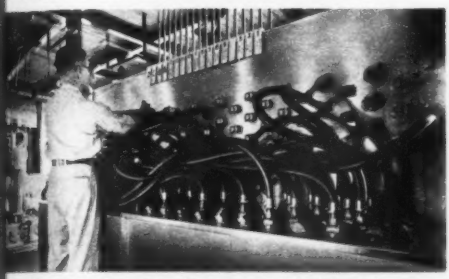
Ducting should be as short as possible. Speed Queen recommends that it not exceed 14 feet nor have more than two elbows in it. In addition, a weather hood with hinged damper is recommended for the outlet end of the duct work to prevent rain, insects and dust from entering the dryer from outside.

Never vent into a chimney or flue or under a building, such as into crawl space, or into an attic or basement, but always to the *outside* atmosphere.

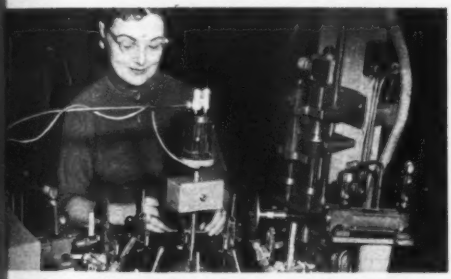
There are over 40 makes of automatic dryers on the market today. Buy the machines offering features best suited to your particular needs. In other words, buy intelligently. Then it's a safe bet that the first time you use your dryer you won't be able to resist that old expostulation: "How did I *ever* manage *before!*" •

HOW AMERICA'S NUMBER ONE CARBURETOR TESTS TROUBLE OUT, BUILDS RELIABILITY IN!

The GM Desert Proving Grounds simulate the most severe summer conditions. At the same time, other parts of the country are chosen to reproduce winter and extreme altitude conditions.



Rochester-GM Carburetors keep pace with the latest advances in fuel to give you years' ahead performance and economy on today's cars and on models of the future.



Quality is carefully controlled at every stage of manufacture to assure trouble-free performance of every Rochester-GM Carburetor and assure that every gallon of gas does a lot more work.

Rochester-GM Carburetors must perform in all 50 states, twelve months of the year, regardless of weather conditions. To do this, trouble is tested out through millions of rugged test miles, simulating conditions in every part of the country. And, through research and careful quality controls, the makers of Rochester-GM Carburetors build reliability in! The results: the same dependable performance in June as in January. To keep this carburetor in top operating condition, it's important to see your factory-trained Rochester-GM Carburetor specialist for periodic maintenance. See him today, and see the difference. *Rochester Products Division of General Motors, Rochester, New York.*

Rochester-GM Carburetor specialists are taught the expert techniques of maintaining your Rochester-GM Carburetor in training schools throughout the country.

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Or write for address of nearest of 48 branches to: *The Black & Decker Mfg. Co.*, Dept. S5109, Towson 4, Md.

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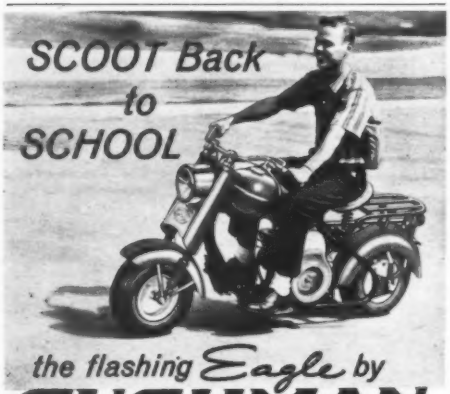
QUALITY ELECTRIC TOOLS



the flashing Eagle by
CUSHMAN®

It's a real thrill to roll on this distinctive machine with its smooth, safe ride; its flashing beauty; its rugged construction; its power from Cushman Husky 4-cycle engine. Up to 50 miles per hour, up to 100 miles per gallon.

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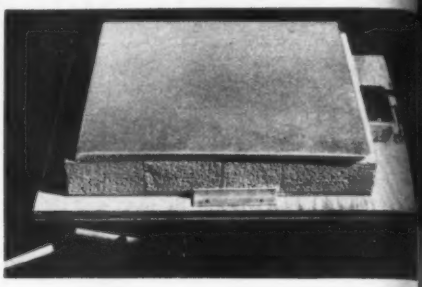
A subsidiary of Outboard Marine Corporation
917 No. 21st, Lincoln, Nebraska

Open-Faced Kiln

[*Continued from page* 104]



STAINLESS STEEL cookie pan makes a good heat-reflecting cover to use with this kiln

wire coil before cutting the grooves into the face of the firebrick. These grooves must be deep enough to recess the coil below the surface of the brick, yet close enough to the surface to keep heat loss at a minimum.

A routing tool (see diagram for construction details) should now be made using five pieces of 18-gauge galvanized iron cut to the size indicated in the drawing. Cut the teeth with a three-cornered file. Washers between the teethed iron leaves give the proper width to the router. Bolt the leaves to a block of wood so that the teeth extend a distance equal to the diameter of the coil plus $\frac{1}{16}$ inch to insure proper seating of the coil in the bricks. Finally, route the grooves, using a straightedge for accuracy.

Now very accurately measure and mark off on a convenient surface the total length of the routed grooves and stretch the coil to the measured length. Get a firm grip on the wire and pull in stages. Don't try to do it in one pull!

When stretched to the proper length, place the center of the coil at the center of the routed grooves and lay it in. If you come out even, as you should, retrace your steps and make the corner bends sharper and more permanent to complete the operation.

Drilling the angled holes through the bricks for the coil ends is done with a straight piece of coat hanger wire. The

[*Continued on page* 134]

LIQUID FLAMMABLES in one-gallon metal containers can be stored safely and conveniently on your workshop shelf.

SMALL HOLE in spare cap permits controlled pouring.

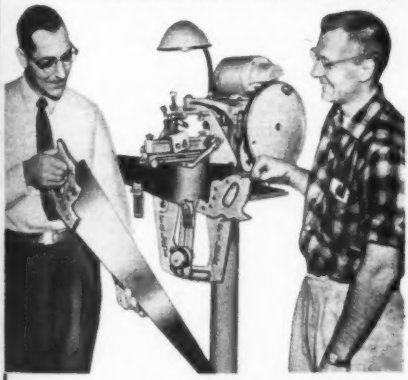
SOLVENT DISPENSERS

SAFELY store and dispense liquid flammables needed around the workshop by using one-gallon tin cans as containers. Paint the cans red to denote danger; then print their contents in white paint on the side of each can. A ⅛-inch hole drilled in the top of a spare cap permits easy pouring of small quantities of fluid. Don't forget to replace with the original unperforated cap when finished. Store in a cool place. Don't fill to top; leave some air space. •

CASH FILING SAWS

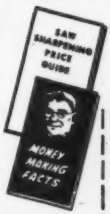
Make from $3 to $6 an hour spare time or start a full time business with the

FOLEY SAW FILER



Here is a steady repeat CASH business you can start at home in your basement or garage, while you are working at your regular job. No experience is necessary to turn out perfect cutting saws —"the first saw I sharpened came out 100%. I think the Foley Saw Filer is a marvel of perfection," writes Clarence E. Parsons. No canvassing —every saw you sharpen will bring you new customers. You will find you can make up to $3 or $6 an hour—$20 to $30 a week in your spare time as a starter. "My spare time saw filing business has made me $952 these first ten months," says R. T. Chapman.

The new model 200 Foley Saw Filer (shown here) is the *first* and *only* machine that automatically sharpens combination (rip and crosscut) circular saws—also all hand saws, band saws and crosscut circular saws. It is easy to operate—simple adjustments—no eyestrain. Patented jointing principle evens up all irregular teeth and makes an old saw cut just like new.



This Free Book* "MONEY MAKING FACTS" *Shows How To Start

"MONEY MAKING FACTS" shows you how others have added hundreds or thousands of dollars to their incomes and how you can develop into a general repair shop that will be your own business. This is a CASH business with a small investment, no overhead, no stock of goods to carry. Mail coupon now for free book and nation-wide survey of saw sharpening charges. No salesman will call.

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Send me free book "MONEY MAKING FACTS" and Saw Sharpening Price Guide.

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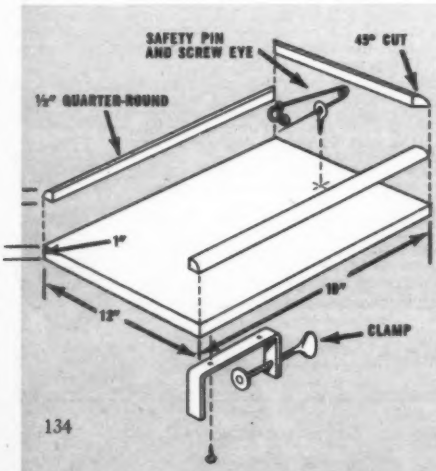
Fish Cleaning Board

WORDS TO FISH BY: Use a fish cleaning board now, save a boat cleaning job later.

THIS gadget makes less of a mess out of cleaning your catch. Photo shows a simple board of 1x12x18-inch stock clamped to the gunwale. A half-inch screw eye on top is for the fish clamps that hold your fryer on the board. Quarter-rounds added to the "deluxe" board (below) keep water out of the boat; here the fish is held by a safety pin threaded through its jaw. Both boards double as tables. Give 'em a good coat of spar varnish and they'll last for years.—*L. H. Schrimpf*



Open-Faced Kiln

[*Continued from page* 132]

straight ends of the coil are snaked throu these holes to the junction box locati The coils are then fastened down with ha pin staples made from the same wire.

To cut down resistance to the junctio box it is wise to add pieces of resistan wire. Cut two pieces of Chromel wi long enough to reach through the drille holes in the bricks to the ends of the co These wires should each have a hook o the end to snag the coil and should th be fastened down with additional staple The straight ends should protrude throu the bricks.

You're now ready to secure the coi with Alundum cement to ensure even he distribution and to insulate them from th covering copper sheet or pieces used in th enameling process. Wooden strips $\frac{1}{16}$ inc thick are nailed to the bricks to make form. Alundum No. 1162 refractory c ment is mixed with water to a slurry the consistency of heavy cream and the sloshed around the coils and troweled ove the face of the kiln to a uniform thickne

When the cement has dried, remove th forms and sand the surface to a smoot thin, even surface upon which the coppe sheet or pieces can rest. Don't sand th cement *too* thin or you may expose a co

Now make the electrical connections i side the junction box. Use the same ki of cord used on electric irons—No. 14 a bestos-covered flexible heater wire. Faste it to the resistance wire with screw-typ copper wire connectors. Strips of asbest cloth or paper are then stuffed inside th box for insulation.

Finally, four pieces of ¾x1½-inch fire brick are cut for spacers between the ki cover and the surface of the kiln. A cove is necessary to keep the heat concentrate over the face of the kiln. A stainless ste cookie sheet makes an excellent cover.

Your open-faced kiln is now complete Plug it in, don your beret and start crea ing! •

Wrap fine emery cloth around a piece of lath, fasten with thumbtacks and use it to sharpen your knives.

Make An Electric Guitar

[*Continued from page* 109]

within $\frac{1}{16}$ inch of all lines and finishing to size later, after assembly. Be sure to flop your plywood over when cutting the bottom piece so that the best grain is facing down. Build up the bottom of the neck where indicated to bring it to a two-inch thickness in case your stock is not this thick. Cement the top body piece in place with Ambroid cement or other good adhesive and hold it in position with a couple of small screws which can later be removed or left in place and covered with the guardplate or pickup.

With 1x2-inch soft pine or balsa build up the sides of the body, cementing the pieces to the top. Then cement the bottom body piece in position and band-saw or carve away the excess wood.

Sandpaper the body to finished dimensions and check carefully with a try square to make sure the sides are at right angles to the top and bottom at all points. Carefully round the edges of the top and bottom so that the plies are revealed to form a decorative edging for the body.

To build your own fingerboard using manufactured frets, saw a very fine line exactly where indicated on the top surface of the neck for each fret, then tap the frets gently in place.

If you use a ready-made fingerboard attach it with two countersunk flathead screws, one centered between the second and third frets and one centered between the eleventh and twelfth frets.

The nut is of hardwood. Glue it in place against the end of the fingerboard and shape it carefully to within a scant ⅛ inch of the top surface of the fingerboard. Cut six small notches for the strings, but not to their full depths at this time; mere scratches are enough at this point. Then make the bridge and tailpiece as shown, unless a manufactured tailpiece is used.

The height and placing of the bridge are very important. Set it exactly twice as far from the nut as the twelfth fret, measuring along the first or thinnest string. Since the bridge slants, the distance along the sixth string will be greater; otherwise the thicker strings would sharp when held down because of the pressure on them.

[*Continued on page* 148]

GALATA BRIDGE, ISTANBUL, TURKEY

On tour or around town, drive with Quaker State, the pure Pennsylvania oil that's fortified to stop both corrosive and erosive engine wear. In countless dynamometer tests and in millions of crankcases the world over, Quaker State has proved that it stops harmful deposits and acid action, keeps engines newer longer! For long-lasting protection against engine wear, specify Quaker State.

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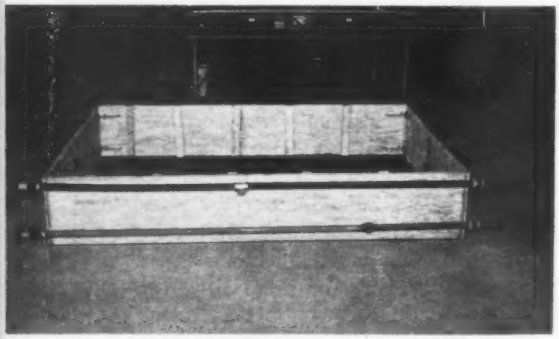
1859— 100th Anniversary of Drake Oil Well and Founding of the Petroleum Industry —1959

ROLLING STORAGE RACKS

Build a pair of these mobile shelves—you'll find them the handiest gadgets in your workshop.

By Robert Brightman



TWO PIPE CLAMPS are used to apply pressure to the top and bottom while the glue sets.

HANDY! That's the only word that can describe the two storage racks shown in the photograph above. After you have built them, you'll wonder how you ever managed without them. You can build two racks each measuring six feet high, one foot deep and four feet wide, out of three 4x8 sheets of ¾-inch plywood.

Cut the plywood as shown in the drawing. The area shown in white is "wasted." Note that the two tops and two bottoms are 1½ inches wider than the shelves. The shelves fit *between* the sides, while the tops and bottoms extend

INSIDE DETAIL. Note shelf brackets used as corner reinforcing angles and backbone.

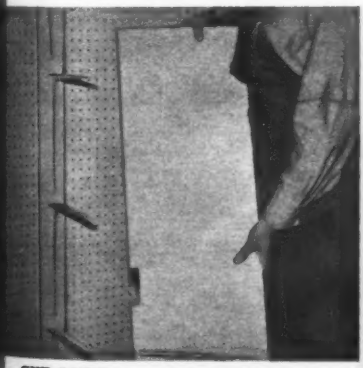
MOUNTING the shelf brackets to the backbone. Back board is perforated Masonite.

across the full widths of the two tracks.

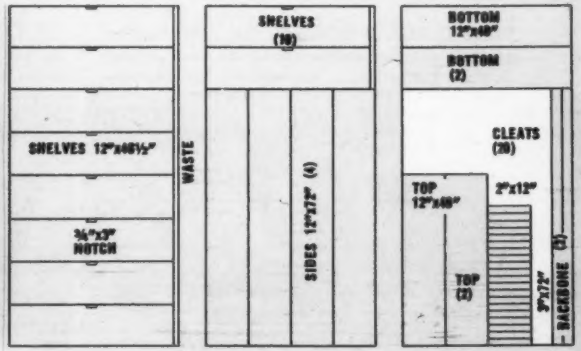
After cutting the plywood to the sizes shown, select a top, a bottom and one side and start to make up a frame. Use flathead screws, glue, and two 4x5-inch shelf brackets for *each* corner. Use a pair of pipe clamps until the glue sets. After the glue has set on one side, make up the opposite section and transfer the clamps until the glue has set on that side.

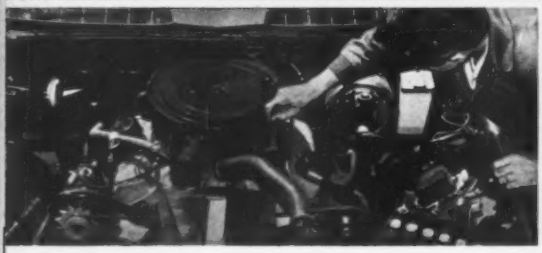
The next step is to fasten the long backbone which measures 3x72 inches down the center of the frame. After the backbone has been screwed and glued, nail a 4x8-foot sheet of perforated Masonite to the back of the frame and to the backbone. Support the backbone when you nail into it. The perforated Masonite serves a double purpose, it insures rigidity and also serves for ventilation in case you decide to place the racks against a damp cellar wall which needs airing.

Now screw the cleats for the shelves along both sides of the frame. Each rack has five shelves (excluding bottom) which means [*Continued on page* 166]



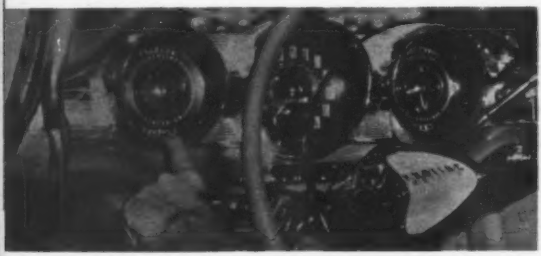
CUT-OUTS on the shelves. ¾x3 inches, clear backbone.





WIDE-TRACK WHEELS of the 1959 Pontiac provide greater space under the hood, make engine parts more accessible for repairs.

SILICONE RUBBER lube applied to step under door prevents lip of sealing strip from adhering, plugging water drain holes.



VIBRATION at contact points of generator regulator may cause ammeter needle to oscillate—but this doesn't mean trouble.

FILLING the power steering reservoir—on Pontiacs with power steering and air suspension—also serves to oil the compressor.

Your New PONTIAC

By Frederick C. Russell
Member, Society of Automotive Engineers

PONTIAC has put some great cars on the road this year. Take, for instance, the 215-hp economy model 420E that Tom McCahill wheeled from San Diego, California to Savannah, Georgia for less than $36 at an average of 21.7 mpg! You probably read about that trip in last January's MI. Of course, Pontiac offers road rockets packing 345 horses in their power plants for those whose watchword is something else than Economy. Yes, there's a Pontiac to fit the needs and purse of almost everybody.

Auto innovations of last year often pass into history after a twelvemonth but Pontiac's unique built-in oil filter has remained through the years. In fact, many owners remembering their earlier Pontiacs will need to be reminded that current models offer a full-flow oil filter as optional equipment. It is mounted on a manifold boss located on the right rear side of the engine block. The oil the pump delivers goes through the filter before reaching the engine's oil galleries.

Pontiac's engine cooling system is relatively standard in its present version even though the 1959 line includes *four* different types of radiators; one for cars with standard synchromesh transmission; another for Hydra-Matic models; a third for taxis and police cars equipped with Hydra-Matic; and a fourth type designed for models with

POWER BRAKES GRABBING? Better take a look under the hood and check the vacuum connections, tightening where necessary.

FEEL RADIATOR HOSE to get an idea if engine thermostat, which is set for 170°, is doing its job controlling temperature.

OIL FILTERS on most of today's Pontiacs are the externally mounted full-flow type installed on right rear side of engine block.

BOLT at center of pilot assembly under the hood can be adjusted to achieve the most secure hood-to-grille fit possible.

SUPINE POSITION under rear of car permits check of rattling gas tank. It may be fixed by adding insulation between tank and floor pan.

AIR GAP on voltage regulator is set at .020 with a feeler gauge. The cutout is functioning properly when both points close simultaneously.

RENEW GASKET of voltage regulator if it shows signs of deterioration. It must be properly aligned before regulator cap is replaced.

air conditioning. Radiators for Hydra-Matic models have an oil cooler built into the lower radiator tank.

Pontiac radiators are made of copper with a fitting on the lower tank for returning water from the car's heating system. The standard radiator pressure cap allows a pressure build-up of 13 psi which raises the coolant's boiling point from 212° to around 244° at sea level. Cars with air conditioning use the 15 psi vent cap which raises the boiling point to 248°.

The engine fan with its unevenly spaced blades checks engine noise and also forces air into the crankcase ventilator inlets located atop the rocker arm covers. A 170° motor thermostat is standard; if ethylene glycol anti-freeze is used, a higher-temperature opening thermostat should be installed.

An important detail of the four-barrel carburetors on the Hydra-Matic models is the throttle return check which prevents stalling by slowing down throttle closing when you suddenly deaccelerate. It also opens the throttle automatically to increase engine speed slightly when the engine vacuum drops. Check this device occasionally to see that it is operating correctly.

Models with the three two-barrel Rochester carburetors are fitted with a special thermostatic lockout valve in the water jacket at the front of the engine manifold. Its purpose is to shut off all vacuum supplied to the vacuum switch on the center carburetor when the engine is warming up.

Oil should be changed when the engine is hot. Pontiacs come supplied with a filling of MS type oil (medium service) which contains an extreme-pressure additive for break-in purposes. This should be used during the first 1,000 miles. Oil should be selected on the basis of where and how the car will be used. Oil changes should be more

frequent than every 3,000 or 4,000 miles if the car is operated in dusty territory. If a car is used for short runs in cold weather you may need to change the oil every month. The oil filter should be changed once a year or every 15,000 miles, whichever comes first.

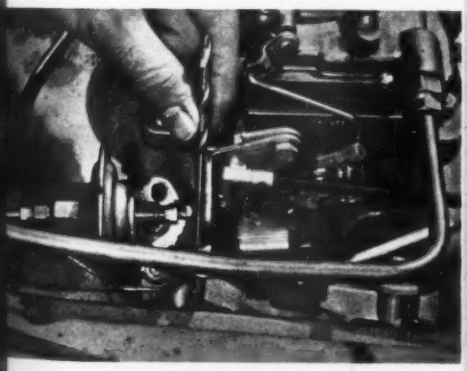
Since the engine's oiling system is a full-pressure type it isn't necessary to keep the level to Full but merely to make sure it doesn't go below the Add Oil mark. Never overfill the oil pan; to do so may cause foaming which disturbs normal action of the hydraulic valve lifters and also fouls the spark plugs.

Every 2,000 miles the crankcase breather elements should be cleaned. They are located in the oil filler caps. Some models also have an element in the crankcase ventilator outlet. Clean by dunking the elements in kerosene, then re-oil by dipping in engine oil and allowing them to drain before replacing.

No periodic lubrication of Pontiac's front wheel bearings is required. Only when the wheels are removed for other work—such as brake relining—need they be checked, cleaned and relubricated. Pontiac recommends yearly greasing of the parking brake cables.

No lube change is needed for the Safe-T-Track (nonslip) differential. But check for leakage each time the chassis is lubricated.

Pontiacs [*Continued on page* 153]



USE A ⅛-INCH DRILL to check the throttle return stop setting; then carefully adjust the setting to exactly this measure of clearance.

SERVICE TIPS

from Detroit

To insure proper Transmatic Drive transmission oil filter operation, Ford recommends that only filter element PBN-7756-A be used for replacement. Other elements may collapse and restrict the transmission oil supply.

Plymouth's cast-iron power steering gear worm sealing ring has been replaced with a plastic ring on power steering gears built after August 11, 1958. It's designed to eliminate "hissing" encountered on left turns which was the result of internal leakage.

American Motors advises Rambler and Metropolitan buyers to see that the shifting mechanism is inspected and adjusted at time of purchase and to follow up lubrication of this unit at recommended intervals.

If you feel your new Edsel isn't giving you enough mpg's, remove the pad and screen from the air-cleaner cover. You'll get less restricted air flow through the cleaner, save gas.

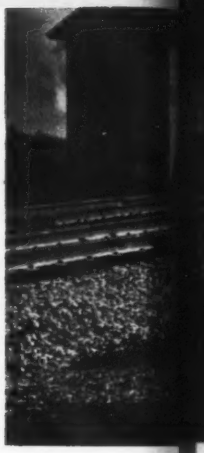
Dodge recommends draining and refilling their automatic transmissions every 10,000 miles instead of the 20,000-mile interval previously recommended for fluid change.

1959 Buick fuel tanks are vented at the front by a rubber hose retained to the body floor pan by a clip. Check occasionally to see that it is securely clipped and not hanging down where it can pick up dirt or become clogged with mud.

If water appears at the rear seat cushion riser below the rear quarter armrest in your Rambler, the drain trough to wheel-house seam is not sealed properly. It can be sealed with Body Joint Sealer. Remove armrest for this operation.

Monthly PHOTO Contest

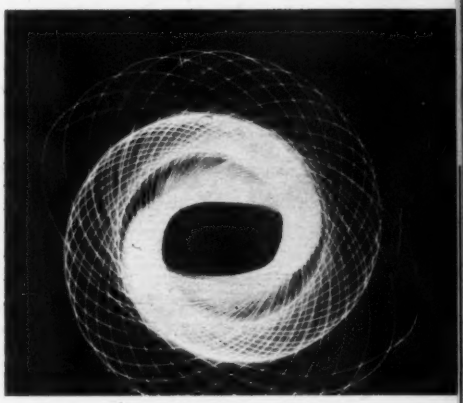
Please put your name, address and picture-taking data on back of each print. Wrap with cardboard stiffener and enclose a self-addressed stamped envelope or postage for return of unused photos. Prize-winning pictures are not returned. Judges are MI Editors. Duplicate prizes awarded in case of tie. Address entries to: *Mechanix Illustrated* Photo Contest, 67 W. 44th St., N.Y.C. 36



$10 Award..."OKAY, BUT THERE'S MY DISH!" By Elbert Shea, Houston, Texas, using a Yashica-I.M. Verichrome Pan; f-16 at 1/300th.

1st Prize ($25) .....SMOKE, STEAM AND STEEL
By Richard Pedler, Muskegon Hgts., Mich., with an Ikoflex on Tri-X film; f-5.6 at 1/500th.

$10 Award .....KOREAN WAIFS
Taken with a Retina using Plus-X film; f-16 at 1/60th. By Corp. Donald Coates, Ft. Devens, Mass.



$10 Award....ETHEREAL DOUGHNUT
Light lines by Gary McLaughlin, W. Enfield, Me. Kodak; f-16 at 1/60th.

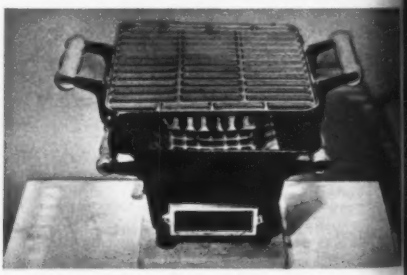
MI's HARDWARE STORE

PENCIL soldering irons have third-wire ground lead, are available in models from 12 to 60 watts for tip temperatures ranging from 550° to 1050° F.
Hexacon Electric Co., 535 W. Clay Ave., Roselle Park, N. J.

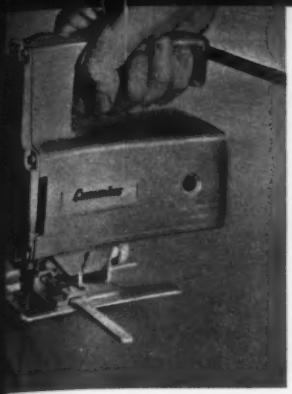
MOLDED plastic fluorescent lamp louvers diffuse light for glare-free illumination. They come in white and five pastel colors.
Sinko Mfg. and Tool Co., 7310 W. Wilson Ave., Chicago 31, Ill.

SAFE-T-BIT for ¼-in. drill bores holes up to 2-9/16-in. dia., has extensions for boring to any depth; priced from $3.90 to $8.75.
Time Saver Tools, Inc., 27 E. Park Ave., Mundelein, Ill.

STEEL measuring tape comes in vinyl-covered holster with belt clip, has push-button rewind; available from 6 to 50 ft.
Evans Rule Co., Elizabeth, N. J.

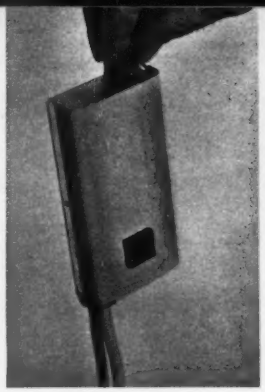


BARBEQUE STOVE is cast iron with hardwood base, burns wood or charcoal, has a 10x10-in. adjustable grill, is $15.95 ppd.
Post Way Grill, Dept. MI, 1133 Broadway, N. Y. 10, N. Y.



SABER-JIG SAW has rip fence guide, tilting shoe for 45° cuts; it's $44.95.

Cummins Tool Co., 5055 N. Lydell Ave., Milwaukee, Wis.



CONTROL senses changes in humidity, operates dehumidifier when required.

Minneapolis-Honeywell Reg. Co., 2753 4th Ave. So., Minneapolis 8

SMALL dehumidifier removes excess moisture from air in closet, has no moving parts.

Westinghouse Electric Corp., Columbus, Ohio

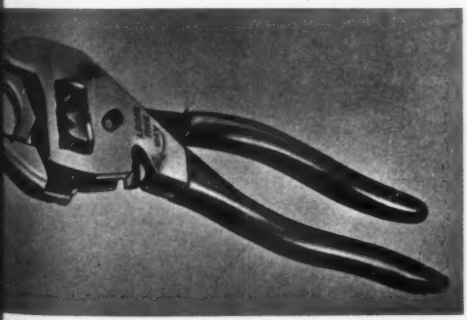
SPHERICAL caster has 2-in. dia., swivels; set of 4 is sold at $8.60.

Faultless Caster Corp., Evansville, Ind.

TOW CABLE made of nylon has 5,000-pound test strength; has locking clips.

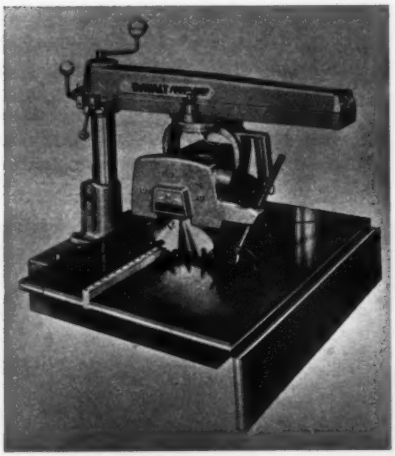
Market Forge Co., 77 Garvey St., Everett 49, Mass.

Armour and Co. is marketing a non-loading finishing sandpaper in a variety of grit sizes. . . . A circuit breaker that fits the standard fuse receptacle is made by Mechanical Products Inc. of 1824 River St., Jackson, Mich. . . . An aerosol called Garbage Can Spray eliminates odors and repels insects and dogs from refuse cans, Stanley Home Products, Westfield, Mass. . . . A new lubricating oil, called RPM Outboard Motor Oil, has been especially developed by the Standard Oil Company of California for two-cycle engines. It contains a special detergent action additive that leaves no metallic ash when burning. . . . A liquid that kills termites and ants has no effect on trees and shrubs, is made by Terminator Company, 146 Merrick Road, Lynbrook, N. Y.



PLIERENCH is now made in 7- and 8½-in. sizes ($7.50 and $8.50) with split-second jaw adjustment; has an automatic jaw lock.

Plierench Co. of America, 4815 N. Ravenswood, Chicago 40, Ill.



POWER SHOP direct drive motor is completely enclosed; a 9-in. blade gives a 2.5-in. depth of cut. The price is $239.

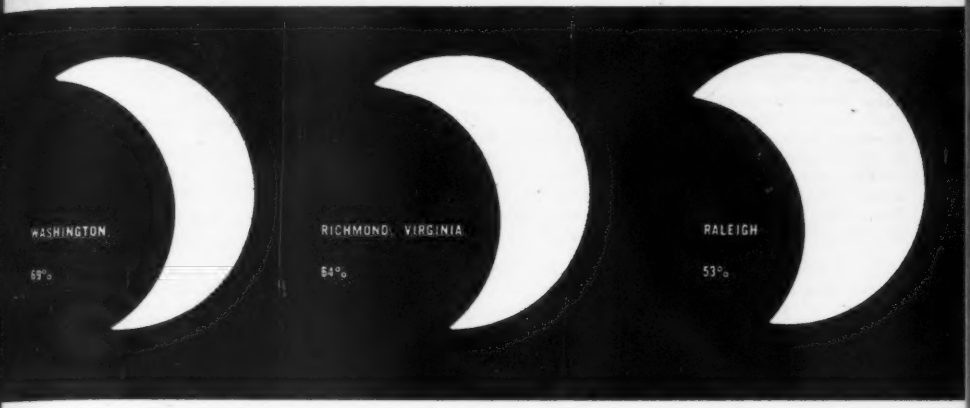
DeWalt Power Tools, Lancaster, Pa.

Path of totality, Baldwinsville (off map) to Salem, is 19 miles on each side of yellow line.

COMING! A Solar Eclipse, Oct. 2

THE sun will come up totally eclipsed in Massachusetts on the morning of Oct. 2nd in a 38-mile wide strip from Baldwinsville to Salem. The altitude of the sun at all points during the eclipse will be about two degrees (four moon diameters) above the horizon. The beginning of the eclipse, or first contact between the moon and the sun occurs in this area with the sun below the horizon. Before moving quickly eastward out over the Atlantic Ocean, the moon's shadow will darken Fitchburg, Lowell, Lawrence, Boston, Gloucester, Salem, as well as Nashua, New Hampshire. Large partial phases will dim the dawn throughout northeastern states, with magnitudes of 97 per cent at Portland, Maine; 93 per cent at New York; 82 per cent at Philadelphia and 69 per cent at Washington, D. C.

Salem, on the Massachusetts east coast, lies dead center in the path and will see 55 seconds of total eclipse ten minutes after sunrise at 6:40 a.m., Eastern Daylight Saving Time. Here indeed is a major astronomical show for observation and for photographers. Rapidly changing events as the spectacle moves to its early climax virtually command electric eye exposure control of photography.

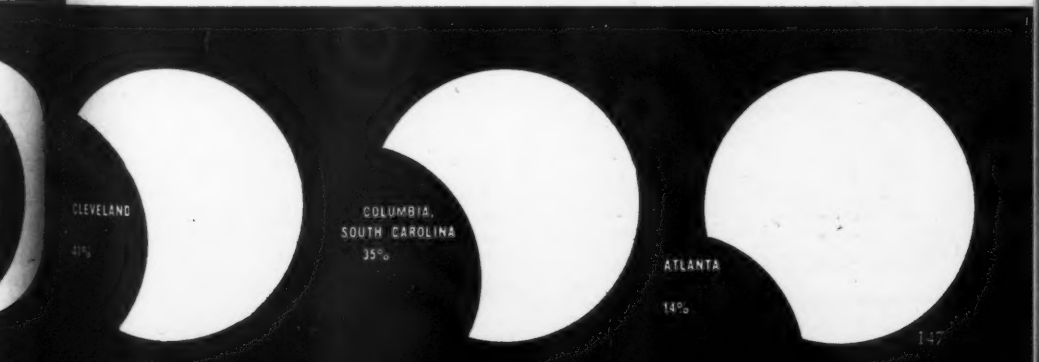


Light meters should be pointed right at the sun until totality has passed. They will direct a realistic portrayal of dazzling partial eclipse stages, although if the air is exceptionally clear, neutral density filters could be added for a few bright moments. Camera fans with mechanically coupled diaphragms are going to have it easier than those using cameras where indicating needles must be matched, or exposure readings taken separately. Stick to a pre-selected shutter speed and let the diaphragm take care of varying light conditions.

The best shots will be scenic, recording the phenomenon as seen over an attractive land or seascape. Because the eclipse will be seen over the horizon, best results will be obtained with telephoto lenses. A six-inch lens on a 16mm camera or a three-inch lens on a 8mm camera will include the totally eclipsed sun and reflecting ocean waves off the Massachusetts coast.

A stunning film section can be done with one of the popular variable focus, "zoom" lenses. Start the run ten or fifteen seconds before totality at the shortest focal length, a slow sweep to maximum enlargement is made when total eclipse begins. Regardless of glare at first, the diaphragm should be kept wide open to capture the full natural impact of terrestrial darkening. Camera sighting of course is fixed in advance by centering the sun in the lens finder at longest focus position and locking the tripod.

Still pictures of better contrast between sun and earth than are possible in the repeating frames of a movie can be obtained by another technique, which will appeal to persons outside the actual eclipse path. With the camera firmly mounted and aimed, a horizon silhouette is underexposed one stop just before sunrise. Next, about five or six minutes after [*Continued on page* 166]



Golden Hammer Awards

[*Continued from page* 121]

Farre, Pittsfield, Mass.; William R. Abell, Alexandria, Va.; John R. Ekstedt, Lynnwood, Wash.; K. W. Brackeen, Snyder, Tex.; Ray Ringo, Louisville, Ky.; Evelyn Hartwell Hendrickson, Carlsbad, N. M.; James Schmidt, Lewiston, Minn.; Edward G. Hudson, Trout Lake, Mich.; Lamen W. Leggett, Shenodsville, Ohio; Roland R. Durocher, New York, N. Y.; Bob Abbadie, Hayward, Calif.; Robert D. Shick, Du Bois, Pa.

The following craftsmen have been awarded CERTIFICATES OF MERIT for their projects:

Joseph S. Kush, El Monte, Calif.; William H. Davis, Beverly, Mass.; Mr. and Mrs. Carlos Rivera, Martinez, Calif.; G. W. Hamilton, Man., Can.; C. E. Boehm, Richmond, Va.; Frank Popelka, Cedar Rapids, Iowa; Malcolm Pearson, Manister, Mich.; C. E. Thackston, Wilson, N. C.; Fred D'Amico, Port Chester, N. Y.; Joseph J. Modleski, Warren, R. I.; William T. Poston, Mosheim, Tex.; Delbert Fidler, Brentwood, Calif.; John W. Hensley, Milan, Ind.; Rickey Bronkey, Long Beach, Calif.; C. A. Gielish, Los Angeles, Calif.; Donald L. Mauger, Paoli, Ind.; Martin D. Jones, Alta., Can.; Benhart J. Miller, Lake Linden, Mich.; Joseph S. Ayres, Lewisport, Ky.; R. D. Hasken, Louisville, Ky.; Jerry Sanders, Pendleton, S. C.; Paul Moore, Teaneck, N. J.; Wendle James Sexton, Johnstown, Pa.; Clifford B. Olson, Britton, S. D.; George Miron, Ont., Can.; Wesley R. Scholz, Portland, Ore.; Henry Pfannenbecker, New Haven, Conn.; Michael D. Oswalt, New York, N. Y.; Bernard E. Drauch, E. Chelmsford, Mass.; John Wally, Ont., Can.; James C. Fuller, Bradford, Pa.; Bro. Joseph McGuigan, Hyattsville, Md.; W. E. Wedemeyer, Donahue, Iowa; K. G. Hood, Ont., Can.; Walter Marmet, Mohawk, N. Y.; Charles F. Ramsay, Knoxville, Tenn.; Richard E. Metzger, Canadaigua, N. Y.; Curtis Coleman, Beverly, Mo.; J. J. Holmes, N. S., Can.; Robert J. Crum, Baltimore, Md.; Vern Gidcumb, Eldorado, Ill.; John W. Guay, Alta., Can.; Alfred Lynch, N. B., Can.; George E. Smith, Ont., Can.; Rudolph Kakela, Chico, Calif.; Anthony Bruno, Brooklyn, N. Y.; Glenn W. Hirschi, Port Gamble, Wash.; George I. Thompson, Georgetown, Mass.; Ralph E. Smeder, Alameda, Calif.; Glenn Willman, Southville, Mass.; Frank Leposa, W. Hollywood, Fla.; Walter R. Hesse, Washington, D. C.; Robin A. Reeb, Sturgis, Mich.; Ernest R. Matthew, Lakewood, Ohio; Earl L. Coghlan, Fairfax, Iowa; Joseph D. Eakin, Petersburg, Tenn.; John B. Scott, San Diego, Calif.; Bruce Greenberg, Brooklyn, N. Y.; Norbert K. Glus, Milwaukee, Wis.; Daniel Cox, Sr., Elco, Pa.

Watch for names of more winners next month.

FUTURA

Scaled after the famous Lincoln Futura, this model has an electric motor, lights, indicator and plastic canopy. For full-scale plans send 50 cents to MECHANIX ILLUSTRATED, Fawcett Bldg., Greenwich, Conn. Specify Plan M-237, Futura.

Make An Electric Guitar

[*Continued from page* 135]

Install your pegs and put a set of guitar strings in place between them and the tailpiece. Set the bridge in position, but do not fasten it down as yet. Tighten all strings until faint musical notes can be plucked.

With a fine saw blade or a small file deepen the notches in the nut very slowly and carefully, one at a time, sliding each string to one side while doing so until each string sits snugly and tightly in its own notch, no more than $\frac{1}{16}$ inch above the fingerboard at the nut.

Now cut the notches in the bridge in the same way until the strings are $\frac{1}{8}$ inch above the twelfth fret. Tighten all strings to concert pitch and test your frets at all positions.

Install the pickup under and as close as possible to the strings when they are pressed down at the highest fret and near the bridge.

Remove strings, pegs, bridge, pickup and tailpiece, then fill, shellac and varnish or paint your guitar as desired. Several coats of varnish, carefully rubbed down between coats, give the best finish here. No finish of any kind should be applied to the fingerboard.

The body of your guitar can be of any color or finish you wish. The one pictured here has a varnished and rubbed finish covered with Transveneer, a decalcomania-like wood grain purchased in sheets from an art store. The guard plate is made from sheet plastic. A strap or cord to hold the guitar completes the project. •

PARTS LIST

The following parts may be obtained by writing to

NORTH MIAMI MUSIC CENTER
12307 N. E. 6th Ave.
North Miami 61, Fla.

Please give number and description of desired items and enclose money order for total amount. Be sure to write name and address clearly. Postage is included in prices listed.

No.	Description	Price Ppd.
MI 101	Fingerboard with frets and position markers complete	$4.50
MI 102	Tailpiece	.50
MI 103	Patent head, set (6 pegs)	2.00
MI 104	Nut	.10
MI 105	Set of frets	1.50
MI 106	Electric pickup	20.00
MI 107	Amplifier	55.50

Craftsman Or Casualty

[*Continued from page* 124]

these machines. Guards on power tools are installed for a good reason: don't remove them! And use a pusher stick to feed stock through a power saw to preclude your fingers ever getting within four inches of the blade.

The most frequent cause of table saw injury is from "kick-back." This occurs when stock binds between fence and blade causing the cut stock to be violently thrown back. To avoid binding, your rip fence should be checked frequently for perfect alignment with the blade. As an additional safety precaution, never allow your body to be in direct line with a spinning blade.

Never reach across a moving blade, and at all times keep blade projection to the minimum required for the immediate cut. Dull blades, besides being dangerous, cause poor work and waste power; they should be inspected before each use and imperfect blades taken out of service.

You are inviting an accident with a jointer if you attempt to plane the edge grain of stock measuring less than eight inches, since stock of narrow dimensions is more likely to catch in the jointer knives. Also, always use a hold-down pusher block when planing thin stock.

On lathes, make sure stock is fastened securely between the centers and check the clearance by revolving the stock by hand before turning on the power. Use only sound stock without cracks, splits or knots, and test glued joints thoroughly.

On drill presses, always remove the chuck key before turning on the power. Clamp your work to the table with a drill-press vise or C clamps. Serious and sometimes permanent injuries are sustained when work held by hand starts to spin as the drill breaks through.

Whenever you work with a table saw, lathe, grinding wheel or sander, *always wear safety goggles or a face shield!*

Keep motor belts properly tightened and covered by guards. They should be checked frequently and replaced when frayed.

Metal machine-tool stands should be grounded. Portable electric tools have a ground connection wire attached to the plug. This wire protects you from shock should a short occur in the switch or tool itself and is designed for installation in the center screw of the electric outlet cover. Heavy duty portable power tools made since 1955 have a three-wire grounding plug and should be inserted into a grounding-type receptacle. Don't use portable power tools in wet or cluttered places. As an added safety precaution, wear rubber-soled shoes when using electric equipment.

A separate circuit should be run into shops equipped with numerous tools to prevent overloading existing facilities. Situate the master switch high enough to be out of reach of children and install a locking device to guarantee they won't be able to turn on power tools during your absence.

Clothing. In a workshop, as in an office, there is a prescribed manner of dress. A smart necktie may look fine with a business suit but it can be a deadly weapon in a shop if caught in a lathe, drill press or saw. Clothing should be close fitting and preferably of smooth, hard texture to reduce the danger of it becoming snagged on work or moving parts. Sleeves are okay only if they have elastic wrist bands to prevent them from getting caught in moving parts. Otherwise roll 'em up. Rings and wrist watches also present the danger of snagging on metal spurs or moving machinery and are contrary to shop safety rules.

Maintenance. Every tool requires regular maintenance. Cutting edges get dull with use—and it is the dull tool that draws blood. Hammer faces should be kept smooth with a slight crown. Hammer-driven tools, such as cold chisels, nail sets and star drills become distorted with flattened and mushroomed heads. These ragged edges break off under continued use and fly with the devastating effect of shrapnel. Grind the ragged edges flush.

You can do much to make your shop accident-free if you clean up as you go along. And don't rush. In rushing you expose yourself to unnecessary dangers. The same applies to anger. If something upsets you, either postpone working in the shop or, if you are already working, take time out to simmer down. •

Fly Fishing For Bass

[*Continued from page* 70]

whole new world of thrilling sport to me. Not since that long ago day have I hung up my fly rod come September.

Novices are apt to fish for largemouths with streamers much too small. I've seen largemouth bass pass up a regular bass-sized streamer and knock the living daylights out of one six inches long. Red and white, and black and yellow bucktails seem to be the chef's specials for September. You'll have to tie those big flies yourself or order them specially tied. But for average-sized largemouths (the one to one-and-a-half pounders) two to three-inch bucktails and feathered streamers are killers.

It's a good idea to start fishing without sinker or spinner, because at times spinners spook these fish. Cast to the edge of grass or weeds and lily pads, logs, under overhanging trees and in deep holes. Let the fly sink almost to the bottom, then retrieve in little jerks that make the streamer dart toward the surface, stop to sink, then dart upward again in the manner of an injured minnow. Strikes will often come while the fly is sinking, so be ready.

If nothing happens after an hour of careful fishing, pinch on a split shot that will carry the fly to the bottom. This time let the fly rest on the bottom a few seconds, then retrieve it so it just rises an inch or so from bottom during each retrieve.

If this doesn't work, tie on a single-bladed spinner, silver if the day is clear and golden if cloudy. If this still proves ineffective, tie on a larger and double-bladed spinner.

Though you'll often find largemouths and smallmouths in the same water, they prefer quite different surroundings. Largemouths like muddy bottoms and lots and lots of pond lilies, weeds and quiet water. They feed there on small fish, frogs, aquatic insects and bugs that drop into the water. Late in the evenings, largemouth bass will smash big dry flies, especially white ones and yellow ones tied as bushy as possible. Cast near a rock, log, fallen tree, overhanging branches, on the edge of weeds or lily pads, or over a sand bar or rock reef. Let the fly remain motionless for several seconds. Then make it quiver gently on the water. This often brings the bass up with a savage rush.

A never-ending argument is which is the more sporting, smallmouth or largemouth bass. I get a truck load of fun from both, yet prefer the smallmouth, because he is harder to outwit, fights in the air much of the time and never knows when he's licked. He is also a pastmaster at throwing the hook just when you think you've got him. And he's a much better dry fly taker than his big-mouthed cousin. He likes colder and faster water, too.

Smallmouth love to hide among rocky ledges, around huge boulders in fast water, in the flat tails of big pools, under fallen trees, in holes cut under the banks, on the edges of deep holes, in the back eddies within inches of shore where they look for flies, bugs, crayfish and minnows, in long riffles and rapids where they go to feed on hellgrammites and other larvae.

In fast water, you'll need split shot or maybe even clamp-on lead. You must get the streamers down to the fish. Cast across the river and let the current carry the fly down in a big arc, then retrieve upstream with little jerks. In quiet water and close to shore, use the same retrieve as described for largemouth bass.

Generally smallmouths, even the big daddies, fall for smaller flies than do their largemouthed cousins. I've had my best luck with golden shiners, black and white bucktails, Mickey Finns and yellow marabous. But smallmouths are also dandy dry fly fish. If you can find them feeding on the surface on a golden September afternoon, you've got it made. Just creep up and cast a No. 10 Wulff-tied fly on the water and see what happens. White, yellow and brown are good colors. Regular McGinties, dry, in size 8 are bass-takers too.

Smallmouths in little rivers are every bit as nervous and leader-shy as trout. So use a nine-foot leader tapered way down and wade into the water as carefully as you know how. If you use the same caution and care when fly fishing for smallmouths as you do when trout fishing, you should have some wonderful times this fall. Good luck. •

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DELIVERS MORE THAN 2 H.P.

includes exclusive built-in ROTO-GRIP motor brake†
(stops motor instantly)

NEW!
EXTRA BIG CAPACITY
9" saw cuts 2½" deep
rips 24" wide

NEW Exclusive ROTO-GRIP motor brake

NEW Totally-enclosed direct-drive motor

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NEW Safety "CAM" Key Switch, built-in

Go to your nearest DeWalt dealer and see a free demonstration of DeWalt's great new Model 925. It's loaded with EXTRA VALUE features you've been waiting for! You can own this incomparable new DeWalt with all its exclusive features *at no extra cost.* See it *now!*

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*T. M. DeWalt Division †Patent Pending

DeWALT, Dept. MI-99, Lancaster, Pa.

☐ Please send me FREE CATALOG of the new DeWALT POWER SHOP.

☐ Send name of my nearest DeWALT dealer.

Name_____

Address_____

City_____ State_____

Dry Cellar Workshop

[*Continued from page* 118]

To keep foreign objects from clogging the drain tile at the downspout, a cement-sand mixture should be applied at the junction of downspout and tile. The downspout should enter the drain tile only a short distance so that it can readily be removed when required.

Masonry and water proofing. Leakage may be prevented by applying a parget or mortar coat to the inside surface of the wall. Do this during a dry spell when the basement walls show little free water. The coating should be keyed into the basement floor which should previously have had a depression cut next to the wall approximately two inches wide and one inch deep. After application the coating should be damp-cured for several days.

Capillarity in basement walls may be reduced by cement-grout coating the inside surfaces. However, this method is inferior to the pargeting method and the bituminous membrane methods mentioned previously.

Water appearing at the joint between the floor and the wall is usually the result of inadequate waterproofing of the exterior face. The condition may be corrected by caulking the joint between floor slab and wall; but a mortar or asphalt edging or cove should be applied to the interior of the wall at the joint.

When water comes from directly under the floor and seeps in around the edge joint, the pressure should be relieved by the installation of tile drain (under the floor and next to the footing) that leads either to a sump in the basement or to a storm sewer.

Dehumidification. Chemical dehumidifiers depend upon the hygroscopic effect of a substance to absorb moisture from the air. Calcium chloride is the most widely used. Mechanical refrigeration dehumidifiers operate on the principle of condensing moisture on a cooled coil called an evaporator.

The conditions of exposure, the kind of soil and the type of construction will determine the steps which should be taken to rid your basement of excess moisture. Once the cause of trouble has been found the corrective action will be apparent. •

Electric Vaporizer

[*Continued from page* 128]

ing plants also use them. Usually, when the carbons burn down to five or six inches in length, they are replaced and may be obtained without charge.

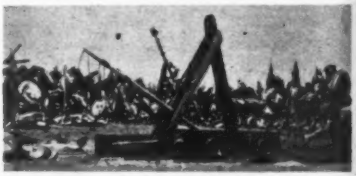
Assembly of the vaporizer is detailed in the drawing. Equally-spaced $\frac{7}{16}$-inch holes are drilled in the two Micarta insulating strips and in the jar lid. Then the holes in the jar lid are enlarged to a half-inch with a rat tail file so that rubber grommets may be inserted to completely insulate the carbons from the lid. Two more holes, about ¾-inch in diameter, are then punched or drilled in the lid so that the vapor can escape. These holes should be placed to clear the Micarta insulating strips after assembly.

On assembly, the carbons should be gently but firmly slipped through the top Micarta strip, then through the grommets in the lid and finally through the bottom Micarta strip. When all is snug, they should project to a half-inch above the top strip and to about a quarter-inch from the bottom of the jar.

Next, the two line cord leads must be soldered to the lugs of spring tube cap clips. First, however, slip insulators made from baby bottle nipples over the leads. Then apply the solder, using very little so that the lugs can be bent in to conform to the curve of the clips.

When plugged in, the vaporizer will produce visible steam in about ten minutes if cold water is used. Naturally, hot water will produce the steam in a shorter time. After each use, the line should be unplugged and all parts should be wiped clean and dry. •

Ancient War Machines



The Scorpion, shown above, is just one of the Ancient War Machine models you can build from MI plans. On the same full-scale plan, drawings for the Tower, Catapult, Ballista and Springal also appear, to give you a complete set. Send 50 cents to MECHANIX ILLUSTRATED Plans Service, Fawcett Bldg., Greenwich, Conn. Specify Plan M-238, War Machines.

Your New Pontiac

[*Continued from page* 141]

fitted with both power steering and air conditioning require filling only the former's reservoir, since oil taken from the power steering pump also lubricates the compressor. If the car has air suspension there will be a reservoir tank within the forward end of the right-hand fender; this should be drained and refilled each time the car is due for a greasing.

If your Pontiac is a new one, and perhaps a bit stiff, a camber and caster check should be made after the break-in period. In checking this a mechanic will correctly assume that the front-end specifications are based on normal curb weight if the car has coil spring suspension. Normal curb weight includes all of the car's equipment and a tank full of gasoline, but no passengers. However, if the car has air springs it should constantly maintain a level comparable to a coil-spring-suspension car with five passengers aboard. Incidentally, before lifting an air-suspension Pontiac with a hoist, remember to pull out the Car Lift knob. This raises the car to the override position. Its leveling action is then locked out.

Pontiac's manifold heat control spring is fitted with an anti-rattle spring. This allows the valve to be set with a very free fit and still not rattle—good insurance against the sort of binding which so often results in malfunctioning heat controls.

If the pointer of the ammeter oscillates at times it is not necessarily a sign of trouble. You should check the tension of the generator's drive belt. But under certain conditions the contact points of the generator's regulator can cause ammeter capers.

Just because automatic transmissions have a tendency to klunk when dropping into gear, don't always assume that klunking when accelerating or decelerating has no significance. It could indicate trouble in the rear-end gears.

A Pontiac, like any car, will return reliability and economy in proportion to the consideration shown it by the owner. Owners who make the small amount of effort necessary to learn the basic needs of their cars are the ones who boast the most dependable and docile vehicles. •

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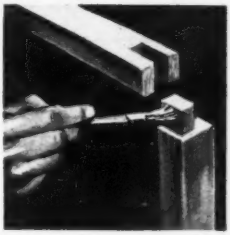

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Tom Tests Land Rover

[*Continued from page* 90]

To test the Land Rover, a vehicle I've been interested in for years, I contacted Bill Haworth, who is doing the public relations pitch for them in this country. I've been doing stories with Bill for over a dozen years, since the days when he was public relations chief for Nash. He arrived at my house in Pennsylvania with the two Land Rovers, both 88" wheelbase. The one I was particularly interested in was the canvas-topped job which came closest to our standard American Jeep. This short-wheelbase model hasn't nearly the room of the longer (109") Rover but I wanted to compare it with my own Jeep which, though several years old now, is mechanically the same as the one Willys offers today.

The first thing that hits you is the price difference. The Land Rover sells for roughly $700 or $800 more than the standard Jeep. The more deluxe versions go as high as $3,600 with the long chassis. As an optional piece of equipment, any Land Rover can be had with a 52-hp diesel engine for $400 or $500 more than the standard 2¼-liter, four-cylinder petrol engine which develops 77 bhp.

The next thing I noticed when comparing the American Jeep with the Land Rover was that the Land Rover has a great deal more usable width, not only in carrying capacity but in tail room, too. Also, it has a much more costly body, made entirely of aluminum alloy. The Land Rover is sparse by any comparison but the American Jeep is far sparser. The Rover has a lot of little niceties such as a cowl which opens up under the windshield, scooping fresh air right into your face. It even has what amounts to a spray rail behind the bumper, to toss solid water *over* the hood instead of through it when fording streams, as I did in my test. Once in the car and under way, two things become apparent immediately when you stack it against the American Jeep. First, the steering is far superior to the Jeep's not only in gearing but for ease of handling. Second, the foot room in the Land Rover must have been designed for a stunted pigmy—any guy much bigger than a barnyard rooster would resemble a pretzel

after driving one of these cars on a coast-to-coast run.

Unfortunately, the seat cannot be pushed back, as it is unadjustable. A steel bulkhead partitioning off the rear bin locks you in there like a walnut in a nutcracker. Kelvin Fowler, the English company representative with Haworth, assured me that the 109" wheelbase job does have adjustable seats and this is something a guy my size would have to have. The rear bin, however, was ample—four hunting dog size as against the Jeep's two.

The reason we haven't any pictures of the Land Rover with the top down is because careful examination showed that to remove the canvas top and frame would be just about as simple a job as breaking out of Alcatraz with a dime-store can opener. Another fault of this car is that it needs a step to get in and out of it, even if you are a six-footer. Any gal who attempts it, unless she's wearing slacks, better know the guy she's riding with pretty well. A goof the Land Rover shares with the Jeep is the absence of an ashtray. Ashtrays are perhaps needed more in cars of this type than in any other because off the road, going through dry timber country, the lack of an ashtray might make an involuntary firebug out of almost anyone.

The rear-view mirror is one of those typically lousy English reducing glasses, calculated to make a big Freuhauf trailer right behind you look like a smallish beetle. The car has a good heater but it is located over the driver's shin in such a way as to keep him continually barked, unless he's "frightfully careful," as they might say. Unlike the Jeep, which uses side curtains, this number has sliding glass windows which aren't exactly the answer to a foot-weary maiden's prayer, either.

Despite its faults, this is still one of the world's truly remarkable pieces of transportation. In all fairness to the boys in Toledo, there's very little it can do that the Jeep can't do. The seats are slightly softer but, then, the standard Jeep seat must have been designed by one of the great-grandsons of the Spanish Inquisition torture specialists. I remember when I bought my Jeep I was ready to sell it after less than 100 miles until we located a couple of English leather bucket seats, which are in it today. Anyhow, back to the test.

[*Continued on next page*]

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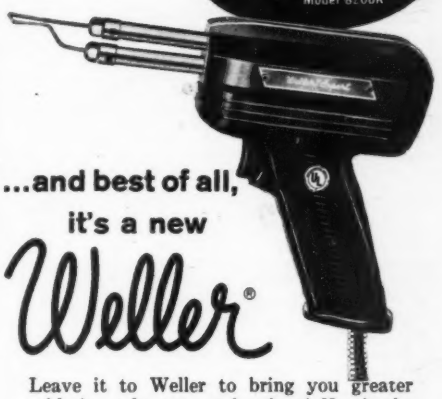

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Our tests were made over rugged hill mountain trails and streams in Buck County, Pennsylvania. Our personal safar consisted of Kelvin Fowler, the Rover fac tory man, and McCahill in the Land Rove and Jim McMichael and Bill Haworth fol lowing behind in my Jeep with variou lengths of chain for yanking the Rover ou if we should find a spot tough enough t hang it up. Good old Bill told me it woul be "impossible to hang the Rover up in place as mild as Bucks County." We hav put this statement away in our "You can' do this to me" file.

At the end of a long, wooded trail the is a bulldozer-made tank trap constructe by some selfish landowner who apparentl didn't want anyone to use the trail. Thi guy wasn't thinking of such cars as th Land Rover or Jeep but undoubtedly o passenger cars. Nevertheless, a few min utes after we started over the trap th Rover was resting on its belly with all fou wheels flailing and nothing happening. h was stuck but good. Despite the embar rassment of the situation, the Jeep wa brought up, chains were attached and th Rover was yanked back into the lap o civilization once again. Having establishe that this was not an un-stumpable vehicle the tank trap was then approached fro several different angles (meaning attacke on the bias) and was finally conquered After this, we headed for the stream.

For a long time we traveled up the river bed with steep cliffs on each side, trying t dodge deep water holes. This terrain wa as primitive as you can find in the easten states. At one spot where we stopped, huge schools of six to 12-inch-long trout eyed u curiously and without fear from no more than six feet away in a spot where prob ably no line has ever been dropped—cer tainly not from a car. This river-cut gorge, I feel safe in stating, had never before been invaded by any vehicle, including a horse and buggy. All this was within 70 miles o New York.

At one spot, when trying to square off t climb a bank, my left rear wheel hit an almost bottomless hole. In less time than it takes a pauper to count his money, I had several inches of water over the floorboard of the cab—which is why I made the earlier statement that a Land Rover won't float for sour apples. For a moment it looked as if the only course was to desert

ship. But the engine was still going, so I shot the throttle down and the front wheels (it was in four-wheel drive) pulled us out and through.

Once on dry land again we took her along trails leading through a deep woods and finally ended up in my own fields where I have a dry, steep-sided gulch only about 12 feet wide. We tried slamming the Rover down one bank and up the other. On one of these quick passages, with Haworth at the wheel (after some egging-on by McMichael and myself), it looked for a moment as if the Land Rover was going to flip over backward, but it didn't.

In summing up, the Land Rover is a great vehicle that could be made even greater with the help of a Comfort Engineer. It'll do anything a Jeep will do. It is better-built and has more carrying capacity and general room. I don't think it will do anything the Jeep won't do—at least I couldn't find anything. The test car had a top speed of about 70 mph, although any speed above 55 mph, even on turnpike-type roads, raises the discomfort index considerably and conversation must be carried on at full shout. At 50 mph it is docile and comfortable.

The Land Rover is a class vehicle from one end to the other, made by one of the most highly-respected companies in the entire industry. The regular Rover car we tested some years ago has been known to real automobile connoisseurs for years as "The Poor Man's Rolls-Royce." By the same token, this Land Rover might be classified as "A Rich Man's Jeep." I'd personally like to own the big station wagon with the adjustable driver's seat for field trial work and hunting, as the dogs would be a lot more comfortable and I could carry a lot more of them to training sessions. In a few words, this car is capable, gutty and as rugged as a cement casket.

Tom Tests Toyopet

[*Continued from page* 94]

traveling at top turnpike speeds. The Toyopet maneuvered well, in and out, without showing the slightest sign of strain, distress or overheating.

Perhaps the biggest single feature this car has to offer is its ride. When I tested it on second-rate roads with a big 4,500-

[*Continued on next page*]

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pound American car leading the way (i pictures), I found it phenomenal. Ov rough patches and actual holes, this lit Oriental bucket actually showed less sho and bump reaction than the big Americ car leading it. I believe that the Toyop has a better ride than any other importe car selling for less than $2,500.

There's a slight catch to this. What y get in ride you lose somewhat in the co nering department—in fact, quite a bit. (hard turns this job doesn't exactly plow- it just leans way, way over like a drun trying to retrieve a fallen cork. Amazing enough, however, in some hard bends an skids on gravel, it kept in control despi the fact that it looked as if it were walkin with one foot in the gutter. This is not com petition suspension by the wildest stretc of the imagination. Over a typical count road, cars such as the Volvo would che up a Toyopet and spit out the parts as went by. But it is a good, comfortabl riding car.

Performance-wise (meaning dig-ou from a traffic light), it is quite similar t taking off from the dock in a Central Par rowboat. However, it is tranquil and man women drivers (or even hairy guys on de pressed days) won't mind this in the leas They may even find it soothing. Zero to 3 mph takes 6.7 seconds and 0-60 mph is hair-raising 24.7. You don't seem t mind this leisurely acceleration too muc though.

As I pointed out earlier, once you hav a head of steam under it, the Toyopet wi belt along all day at 60-70 mph withou discomfiture either to you or to the ca From somewhere (not to be found in th specs) it grabs quite a handful of torqu for climbing grades in top gear. In othe words, once you have it up to speed, i shows very little drop-off, even on fairl steep grades of a half-mile or more. I onc had an Uncle (now gone to his reward who was a world traveler and a real ba of yaks when it came to correspondence We got hundreds of cards from him fro all over the world and each one bore th same message: "Pleasant place." Well, th is a "Pleasant car."

Dissecting the little slant-eye a step fur ther, we find a number of features, som new and some old, that make up the tota character of this Oriental import. For ex ample, it has a nice, big, old-fashioned cow

ent—remember them? Well, just in case ou don't, on un-air conditioned cars they eat all hell out of those fuzz-stuffed pres-ure vents Detroit's been throwing at us or years. A cowl vent funnels a big blob f solid air right onto the floor of the front assenger compartment.

One place where Toyopet goofed, and ery badly, is that this car has two full-ize sunshades which, unfortunately, are ounted in such a way as to cut out almost wo whole inches of visibility, even when ney are in the farthest up position. This hanges a car with potentially great wind-hield vision into a tunnel, if you happen o be tall in the saddle.

The car had an excellent radio. It also ad the best little trouble-light arrange-ent we've run into in quite some time. he trouble light, with about ten feet of ord, is supplied with the car. There are wo outlets for this light—one in the glove ompartment, the other under the hood. hese receptacles are almost identical to he wall sockets you have in your home. A reat safety feature is a light on the dash hich flashes a red warning signal if any oor is even slightly ajar.

The carburetor has a gimmick, too: a ull-size Plexiglas-type window that allows ou to see the whole float chamber, so that n case of a failure you can tell instantly hether the carburetor has fuel in it. You an see the fuel going through as the en-ine idles. The engine is an overhead-valve our, displacing 88 cubic inches and put-ing out 65 brake horsepower at 4500 rpm. his mill is about as easy to get at as the ollection plate in church. The fittings and ppointments are remarkably simple and asy to operate. The chrome appears to be f Grade One quality (something that left etroit with Cal Coolidge) and the paint n our test car seemed to be excellent. Top peed was just about 75 mph.

In summing up: Having made a survey f several hundred buyers, I found that ne of the most often-stated reasons they ave for purchase was the desire to own n interesting or different automobile. Well, Buster, a Japanese car should be retty "interesting" for quite a few months o come. When you take all the features, acts and faults of the Toyopet and roll hem into a ball, it looks like a good buy if its limitations fit into your scheme of things. •

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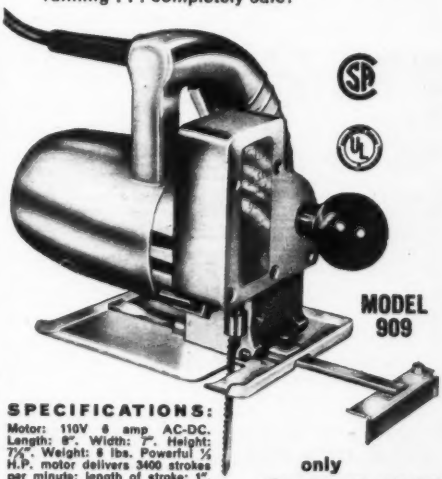

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Free Land In Alaska

[*Continued from page* 75]

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Now, what about that land in Alasl How do you get it? There are several bas laws under which you can pick up the kin of land you may want. Let's look at the laws one at a time:

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In either case, you must put up a habi able house, live in it for a certain period time and cultivate at least one-eighth the land. Then, within five years, if y have proved that you have met the r quirements of the law, Uncle Sam wi hand you a patent (deed) to the land an it's yours forever. The time you must l on the land before "proving up" vari from less than a year for veterans to mo than three years in certain cases.

Homesteading is not for sissies. Clear land is hard work; you may live miles fr your nearest neighbor. This is one rea why many Americans are going up in m ern wagon trains—to homestead toge and help each other.

It is no secret that most people st homesteads only to meet the minimum r quirements of the law. They often pl nothing more than oats or grass and co they obtain patents to the land they mer use the land as a rural home, vacation r sort, carve it up for sale, establish a bu ness or sit on it for speculative purpos

The Homesite Act. Under the Homesi Act of 1934, you are allowed to stake o up to five acres of vacant land for reside tial use, build a habitable house and li

on the land for at least five months during each of three years. After that the land is yours at a cost of $2.50 per acre, or a minimum of $10. World War II and Korean veterans can deduct up to two years of the residential requirements.

The Small Tract Law. Under this law it is possible to obtain up to five acres of land for almost any purpose imaginable—residential, recreational, or business. The Small Tract Act has enabled thousands to obtain highly desirable lake-front property for summer homes and weekend retreats. But under the Small Tract laws you don't stake a claim to land as you would under homesteading or the Homesite Act. The land first has to be classified as suitable for small tract use and then it is leased or sold at stated prices considered to be fair market value. But what is often "fair market" value to the government represents a sensational bargain for land hunters.

Generally, land under the Small Tract Act is not sold outright. You usually get a two-year lease with an option to buy the land if, during the two years, you have made acceptable improvements on it.

How do you find land under the Small Tract Act? The best way is to visit the nearest BLM office and make inquiries. In some cases, you may be able to examine fairly current maps showing where lands have been classified for Small Tract purposes. Or you can apply to have suitable land classified for Small Tract use. If and when the land is so classified, you get first crack at a parcel.

Oil And Gas Leases. If you've got gambling blood, an oil and gas lease may be just the thing you want. You don't have to live on the land or do anything except own title to the land by means of a lease. If anyone wants to drill for oil or gas on land covered by your lease, they have to pay you whatever price you may be able to negotiate.

Right now, as a matter of fact, oil and gas leasing is booming in Alaska and is keeping BLM officials busy day and night. Why? The first significant oil and gas discoveries were made only a couple of years ago. Since then 25 oil companies have al-

[*Continued on next page*]

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ready invested about $30 million in exploration and development. The Geological Survey estimates that in the years ahead this figure will be multiplied many times.

The beauty of oil and gas leasing is that any citizen can compete for potential oil and gas land on the same basis as a huge corporation.

Here's how it works. If there is vacant public domain not known to contain oil and gas, it is called wildcat land. According to the U.S. Geological Survey, there are now about 110,000,000 acres of wildcat land which show some promise of yielding oil or gas. Any or all of this land may be worth a fortune *after* oil or gas is discovered. But somebody has to make the discovery. If they do, and you happen to be sitting on a lease to adjoining land, you can be sure that oil companies will be pounding at your door to make a deal with you.

Oil and gas leases are issued to any citizen over 21, or to private associations of citizens, or corporations. You must apply for a lease to a minimum of 640 acres. You pay 50 cents per acre the first year of the lease; nothing the second and third years, 25 cents per acre during the fourth and fifth years. At the end of five years, the lease expires, unless you apply for a five year renewal.

If you feel you cannot afford to hold a lease on a 640-acre minimum, you can form a partnership to share the cost, or sell rights to others after you obtain the lease.

But it's one thing to get a wildcat lease like a pig in a poke and something entirely different to know what you're doing. The real technique in getting potentially profitable oil and gas leases is to find the most promising wildcat lands. You do this simply by looking for clues in the various oil and gas reports made by the U.S. Geological Survey. These reports are available to the public, many of them free. For more details, write to the U.S. Geological Survey, Washington 25, D.C. Ask for lists of publications regarding oil and gas reports in Alaska.

Once you find a clue to promising oil and gas land, your next step is to visit the nearest BLM office in Alaska to check the land records. If the land you want is vacant, you can apply for a lease right there and there.

But whether you go to Alaska as

homesteader, businessman, outdoors enthusiast or to cash in on the oil and gas sweepstakes, here are three books you should read. First: For 20 cents you can get a 42-page booklet called Information Relative To The Use And Disposal Of Public Lands And Resources In Alaska, from the Government Printing Office, Washington 25, D.C. Second: Mid-Century Alaska is also sold by the Government Printing Office for $1. Third: Guide To Alaska And The Yukon is sold by mail for $2.25 by Guide To Alaska Inc., Box 856, Cathedral City, Calif.

For more detailed information about public land laws, my own book, How To Get Land From Uncle Sam, is the only available reference. Try your library, or write to the publisher: W. W. Norton & Co., 55 Fifth Ave., New York, N.Y.

Meanwhile, remember that the Alaska land boom is on. Land stampedes wait for no man. The time to cash in is now—and the sooner the better. •

Workhorses Of The Sky

[*Continued from page* 61]

curtain walls and glazed windows, and airlift it to a midtown building site. The same is true with bridge spans; water, gas and fuel tanks; powerline towers and a host of other construction projects.

But let's get back to our around-the-clock utilization of tomorrow's eggbeater sky-hooks. It must be obvious from the foregoing that there will be plenty of jobs around a great city to keep the copter cranes busy during the working day. As the five o'clock whistles blow in plants and offices, the smaller cranes again pick up their passenger pods and hustle the commuter crowds home. Late evening sees that chore done and there is a short breathing spell while equipment is checked and crews changed. Then the night shift begins.

As darkness settles over our huge metropolitan centers, the cranes go aloft again. Beneath their whirling rotors, monster illuminated advertising displays, larger than Broadway's biggest signs, hover and wheel above the cities. Carrying their own electrical generating plants, they blaze forth slogans for services and products of all sorts. They are seen by

[*Continued on next page*]

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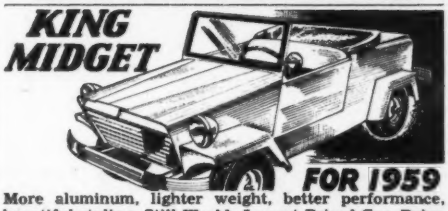
TAPE AND GLUE

KING MIDGET



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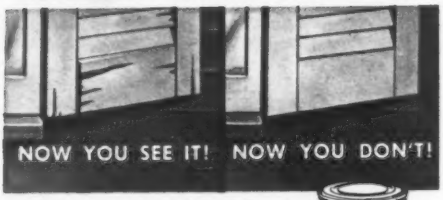

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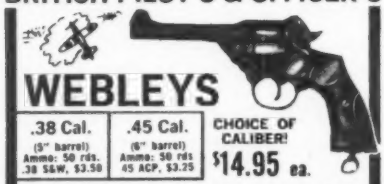

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millions simultaneously, impossible fo earthbound signs. At lower levels, aeria sightseeing buses follow the light-spangle boulevards and skirt the waterways. Th ever-changing views of a dark but glitte ing metropolis are breath-taking in scop and beauty.

More elaborate conveyances, even t flying night clubs, may take off benea multiple-copter lifts. With tables s around their glass-enclosed rims and ce tral dance floors that can be opened to th sky, these flying palaces of pleasure wi have a charm all their own. Aerial nig clubs may seem a far cry from today copter cranes—but ten years from no you may well be sipping drinks in a St Bar or dancing your date a thousand fe above Broadway! •

He Files Boats

[*Continued from page* 81]

storage marina, fully mechanized. No bo stays in the water more than a few mi utes after returning from a cruise. And if all so deftly done that individual bo handling fees have been eliminated.

Ericson takes care of 40 to 50 boats hour, at an average time of 35 seconds fro shed to water. The method is ridiculous simple.

The secret is a slightly modified for lift. The principle is so uncomplicated it almost sure to revolutionize small-bo handling throughout the country. Erics knew so little of conventional marina o eration when he entered the business 1954 that it was easy to ignore the rules. B hit on the fork-lift idea almost at once after a few false starts he had perfected His associates found that by dropping t level of the lift surface below the alres low center of gravity, they could raise lower heretofore unheard-of loads witho danger of the fork-lift tipping on its no So they rigged up their first I-beam-a brace lifting fork, stuck it under a boat a

(A) Shop Type Transformer (B) Weld and Power Combination (C) Home Work Shop Model

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up she went, perfectly balanced, to heights of ten feet or more!

They padded all surfaces that would touch the boat hulls and there was the key to their revolutionary marina operation. The first shed was built, with padded bins on two levels to take boats of 12- to 20-foot lengths. Slips were constructed, wash racks were built near the slips and the Miracle-Strip Marina was in business.

Here's how Miracle-Strip Marina boats are launched and recovered: Ericson or one of the boys hops aboard one of the half-dozen modified fork-lifts (two sizes, 2000-pound and 4000-pound capacities), runs it into one of the five big sheds and nudges the elongated underslung fork into position under the transom. Up goes the fork, it touches the hull gently, shifts for better position, then deftly raises the boat a foot off its padded perch. The operator backs his valuable load straight out of the bin, swivels the lift around and heads for the slip. With front wheels nudged up to the safety rim at the absolute edge of the slip, lift is lowered until the fork disappears beneath the water and the boat is afloat.

This deluxe boat handling, so saving of boats and hull paint, costs the boat owner $10 a month for craft under 14 feet and $12 a month for larger boats. That includes all the in-and-out service he wants. Charging these modest fees earns the marina something like $400,000 a year. •

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A Solar Eclipse Oct. 2

[*Continued from page* 147]

it rises, the crescent is snapped on the same film, slightly overexposed. But, the tenuous total eclipse should be covered with a different negative to avoid washing out of detail by the dawn light.

Use of color film is definitely recommended to reproduce all of the unusual sky shades; Kodacolor, or regular Ansochrome will provide good results.

Amateurs wishing to do a series of working eclipse phases on one negative should space them exactly every five minutes apart. Elapsed time motion picture shutters are tripped precisely each second over a six-minute period. Allow for anticipated subject movement across the field. Kodak No. 4 neutral density filter will have to be put in front of camera lenses as the sun ascends out of the denser atmosphere. Specific exposure directions are impossible on account of unpredictable local conditions. However, they would obviously have to be greater than the best 1/125th second at f-22 on Verichrome Pan (with No. 4 filter) for crisp disks of the sun two hours after sunrise.—*P. Leavens*

Rolling Storage Racks

[*Continued from page* 137]

you will need ten cleats for each rack. The placement of the cleats, which of course will determine the height of the shelves, is a matter of personal choice, but here's a good tip: make the first shelf about six inches high so it will accept quart cans of paint, then you will wind up with five generous shelves, plus a shallow top one.

For mobility each rack is fitted with four 2½-inch rubber-tired Faultless ball-bearing plate casters. Each shelf is supported in the middle with a steel shelf bracket. After all the cleats and shelf brackets have been installed, give the racks two coats of semi-gloss gray paint. Then install the casters.

PARTS LIST

3 sheets plywood, ¾"x4'x8'
2 sheets perforated Masonite, ⅛"x4'x8'
16 shelf brackets, 4x5 inches
12 shelf brackets, 10x12 inches
8 Faultless plate casters, 2½ inches
Paint, glue, sandpaper, nails, screws, etc.

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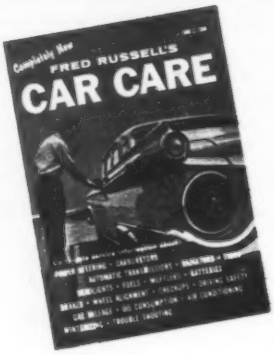

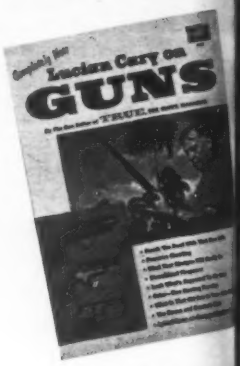

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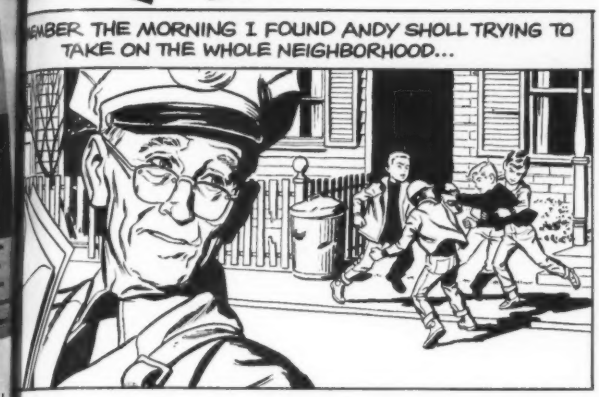

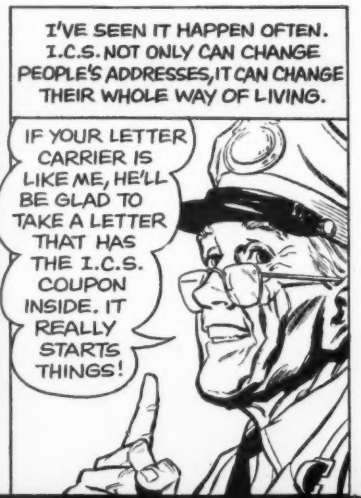

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